SAN JOSE NAVIGATION

BT Series

BT-48

User's Manual

Wireless GPS Receiver Model BT-48 User's Manual

Version: 1.5

Published: January 2004

PREFACE

Thank you for purchasing the **SAN JOSE NAVIGATION** BT-48 Wireless GPS receiver. This deliberately edited manual is to introduce the users, to provide the complete technical data that is needed, and so as to operate BT-48 smoothly and correctly as soon as possible. Make sure to read this manual carefully before using this product. Most problems will be solved through the explanations and the troubleshooting tips. Once you finish reading it, keep it handy for necessary reference.

Please note that specification and information are subject to change without prior notice in this manual. Any change consequently will be integrated into future editions. The manufacturer assumes no responsibility for any errors or omissions in this document.

This manual is divided into the following chapters:

Chapter	Content	Information
1	Getting started	Brief product Introduction, information & specification
2	Operation Guide	Detailed hardware/software operation guide
3	Care and Maintenance	Attentions for care & maintenance
4	Troubleshooting	Lists of possible problems & solutions during operation
5	Warranty	After sales services & limited warranty for this product

TABLE OF CONTENTS

1   GETTING STARTED

1.1   Product Description

The SANAV BT-48 Bluetooth GPS Receiver is a mobile GPS receiver integrated with Bluetooth wireless technology. Combining the highly technical GPS receiver, mini antenna and Bluetooth technology all together from our innovative concept, BT-48 achieves the highlights of micro-sized, high gain, low power consumption, long battery life and totally wireless GPS solution. BT-48 is flexibly designed to fit for navigation and positioning along with any Bluetooth-enabled PC, Palm or Pocket PC devices. The total wireless solution enables you to navigate freely without the hassle of messy wire connections.

1.2   Features

◇ Bluetooth wireless technology for wireless connection.
◇ Capability of reading NMEA-0183 Sentences (DTM, GGA, GLL, RMC, VTG, ZDA) from GPS.
◇ High sensitivity in vehicle use.
◇ Smallest size of Bluetooth GPS receiver on market
◇ Streamline and lightweight: perfect for mobile and portable use.
◇ Clear red and blue LED to indicate power and GPS status.
◇ Use 3 AAA NiMH batteries to operate more than 6hr after full charged in continuous mode. The power source is easy to get.
◇ Fast TTFF: Cold/Warm/Hot: 45/35/6
◇ WASS capable

1.3 BT-48 Detailed Parts

Battery Status:
Power on: Red
Low Power: Blinking

Wireless
GPS

Pwr

Fix

GPS Status:
Fix: Blue
Not Fix: None

Charging Status Indicator
Charging: Red
Charging Complete: None

Mini USB
(Mini USB here
only supports
charging function)

Power Switch
On: Right
Off: Left

6

Battery Door

Battery Chamber

1.4 Applications

◇ Navigation and positioning
◇ Finding streets and routes via GPS map software
◇ Travel/track planning
◇ Personal security and safety
◇ Application for Marine Navigation
◇ Fleet management GPS system
◇ GPS network timing
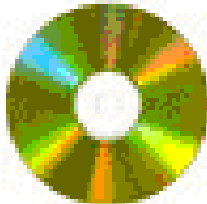◇ In-car navigating/locating for public safety and emergency
◇ AVL GPS function
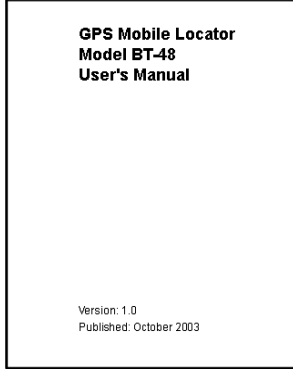
1.5 Specifications

General:	
Frequency:	L1, 1575.42 MHz.
C/A:	1.023 MHz chip rate
GPS Fix Data Renewal Rate:	1 sec
Channels:	16 Parallel Channels
DGPS Source:	Default: None
Programmable:	WAAS
Antenna Type:	Built-in Antenna
Accuracy: (DGPS: None)	
Position:	15 meters RMS, without SA
Velocity:	0.1meters /second, without SA
Speed accuracy:	0.1 Km/h with Signal level higher than -130dBm. Speed faster than 40km/h.
Bearing accuracy:	0.2 deg with Signal level higher than -130dBm. Speed faster than 40km/h. Course 45±0.1°
Acquisition sensitivity:	-130dBm
Tracking sensitivity:	-138dBm (Fixed position)
Time Accuracy (95%):	1ms (Fixed position)
Time:	1ms synchronized to GPS time
Datum:	WGS-84 (or by demanded)
Acquisition Rate:	Open Sky and Stationary
Reacquisition:	2 sec, average
Cold Start:	<45 sec, average
Warm Start:	<35 sec, average
Hot Start:	<6 sec. average
Connection:	Communicate with Host Platform via Bluetooth (Class2) Serial Port Profile (4800 BPS)
Protocol:	Default: NMEA-0183 (V2.3)— DTM, GGA, ZDA, GLL, VTG, RMC
Power:	Default: 6hr. (min.) with AAA 1.5V Battery * 3
Device Size and Weight:	42 (W) x 63 (L) x 27.5 (H) mm, 80g
Environmental:	Operating Temperature: -20°C to + 60°C Storage Temperature: -30°C to + 70°C Relative Humidity: 5% to 95%, non-condensing

Specifications subject to change without prior notice.

1.6 Package Contents

1	BT-48 Body	
2	Software & Manual CD	
3	12V to 5V@3A Cigarette Lighter	
4	AAA Batteries x 3	AAA
5	User's Manual & Quickstart	GPS Mobile Locator Model BT-48 User's Manual Version: 1.0 Published: October 2003

2 OPERATION GUIDE

2.1 Operating System Requirement

◇ Windows 95, Windows 98, Windows Me, Windows 2000, Windows XP, Windows CE, Macintosh or any other OS that is compatible of GPS NMEA Sentence format.
◇ Desktop/laptop PC, Palm, Pocket PC, which is Bluetooth-enabled as the communication device.
◇ Host Control Interface (HCI) Supports Bluetooth Serial Port Profile (SPP)

2.2 GPS Signal Reception

The SANAV BT-48 offers 15m high position accuracy and 45sec TTFF cold start initial position fix. However, those performances depend on the location and the initial state of the receiver. The environmental factors that influence GPS TTFF and position accuracy are:

◇ Tall buildings and constructions
◇ Narrow streets
◇ Heat rejection film on glass or on windshield
◇ Under trees of heavy leafage
◇ Beside large and tall cliffs
◇ Any object that obstructs a clear view of the sky
◇ Poor satellites geometry conditions.

2.3 Connect BT-48 to Your Pocket PC

1 Load 3 fully charged AAA NiMH batteries into BT-48; make sure the batteries are loaded in their correct polarity (+or -) of the terminals.
2 Turn BT-48 on. The battery status LED will immediately be red to indicate power success.
3 Secure your BT-48 in an unobstructed, open sky view and stable place. If you use BT-48 in you vehicle, place BT-48 on the dashboard with the front surface facing the sky.
4 To access Bluetooth communication between BT-48 and Pocket PC, power on your Pocket PC first. After initializing, you will see the Bluetooth icon on the right down corner on your screen.

5 Tap the Bluetooth icon; select "Bluetooth Manager". Note that the Bluetooth function should be on automatically when you initialize your Pocket PC.
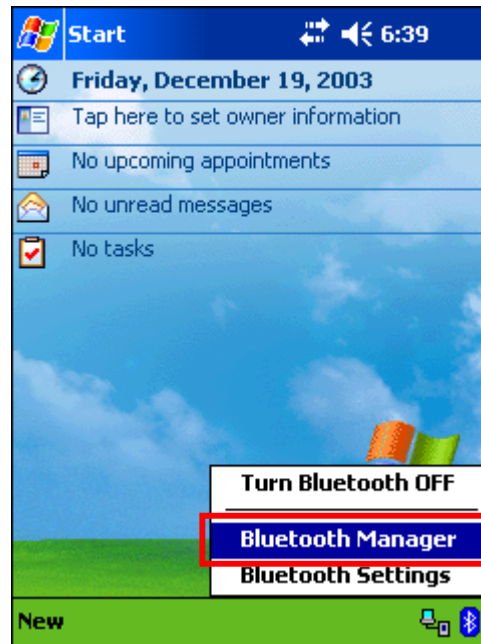
6 In Bluetooth Manager "My Shortcuts" window, Tap "New" & "Connect" to find available Bluetooth devices and services.
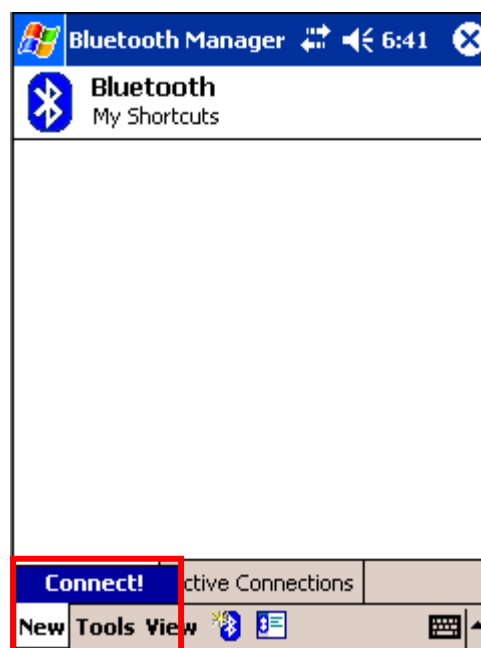
7 In the Bluetooth Connection Wizard, select "Explore a Bluetooth device" then tap "Next".

8 Tap "Next "to continue Bluetooth Connection Wizard.

14

9 Await Pocket PC searching for Bluetooth devices. You will see "SANAV BTGPS" in your Bluetooth Browser window. Tap the icon to continue
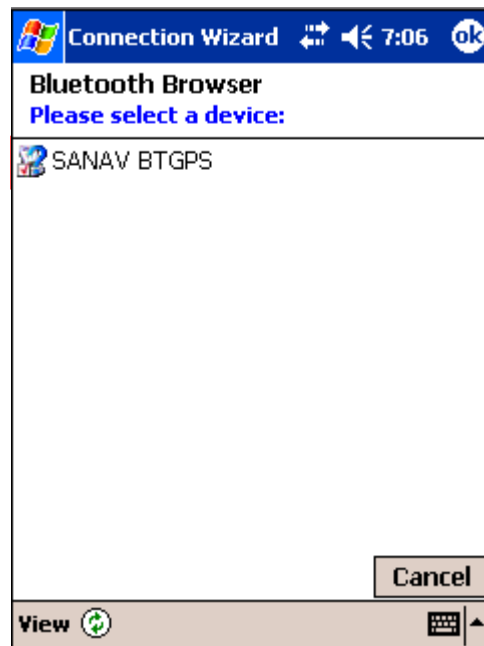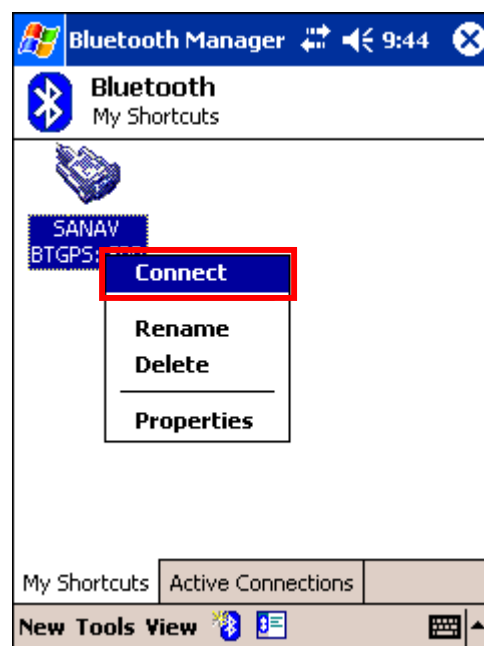

10 Select Bluetooth available service "SPP" in the Service Selection menu, and tap "next" to continue.

www.sanav.com

11 Now you successfully create Bluetooth Connection shortcut. Tap "Finish" to close the Connection Wizard program.
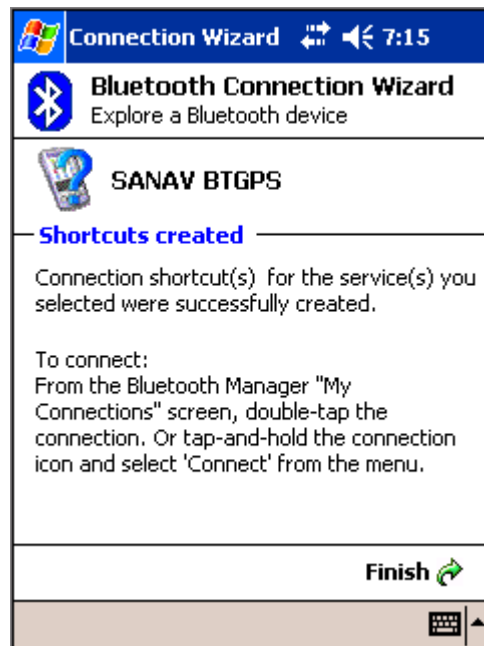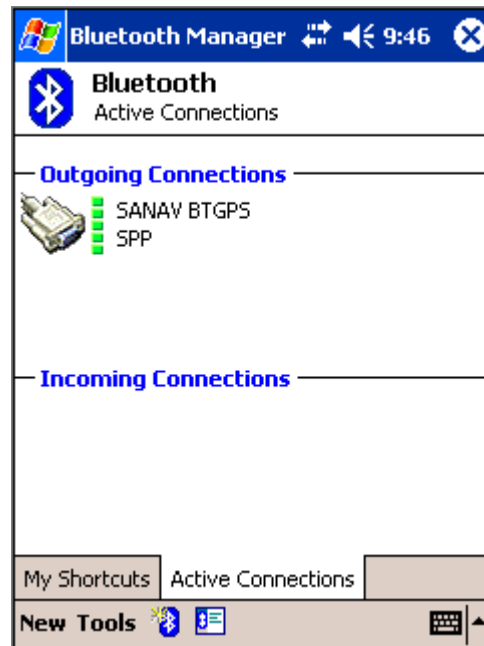

12 Now in the Bluetooth Manager menu, you will see the SANAV BTGPS shortcut in the list. Tap the icon still and select the Connect option.

16

13 Bluetooth connections completed. In the Active Connection window, you can check the Bluetooth connection is on or not.
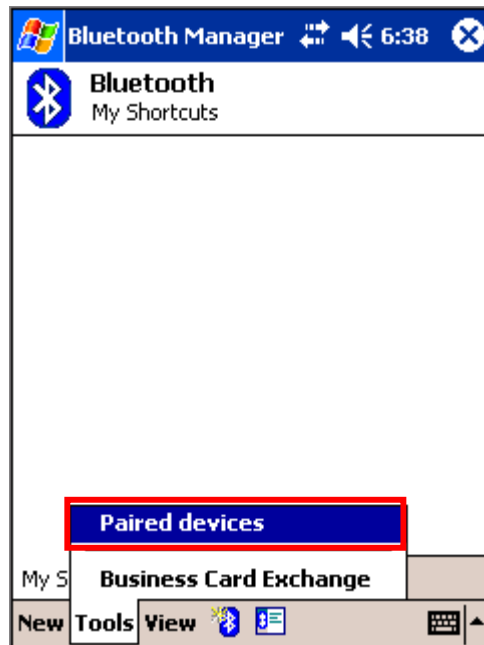

14 Await TTFF simultaneously, the GPS status LED will be Blue to indicate GPS positioning fix.
15 BT-48 will now automatically and continuously receive the satellites' GPS NMEA data and transfer to Pocket PC via Bluetooth for navigation application.

17

2.4 Pair BT-48 to Your Pocket PC

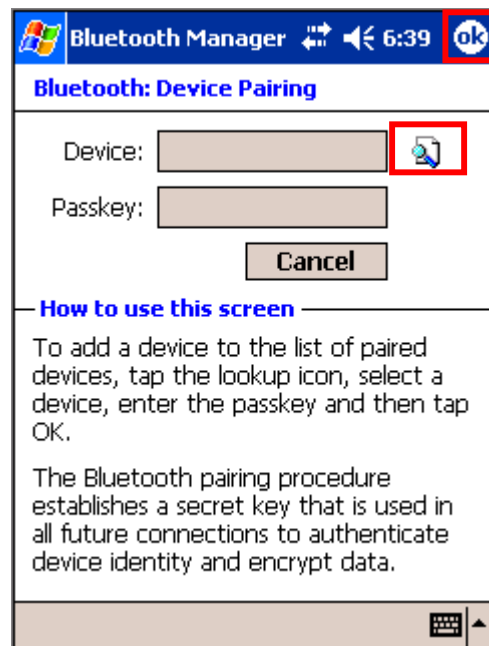1 In "Bluetooth Manager" window—"My Shortcuts", select "Tools" and "Paired devices".

2 In "Bluetooth: Paired devices" window, tap "Add" button.
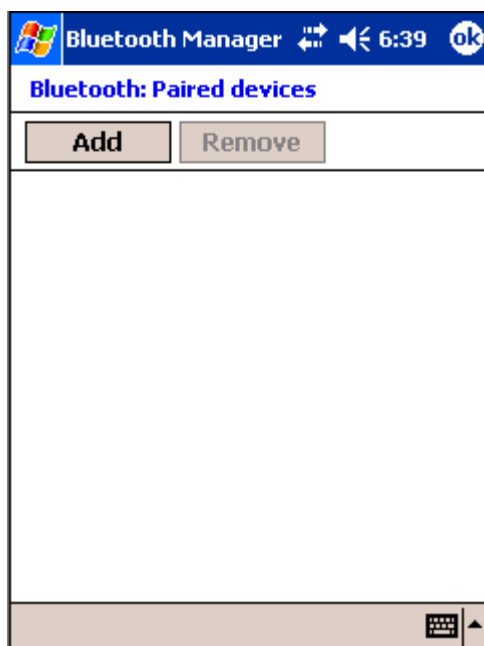
3 In "Bluetooth: Device Pairing" window, tap "🔍" icon to search for current available Bluetooth devices.

4 Waiting for Bluetooth device searching. You will see the SANAV BTGPS icon appearing in the following list. Tap SANAV BTGPS icon to continue.

19

5 In "Bluetooth: Device Pairing" window, enter Passkey "**6666**" and then tap "ok"
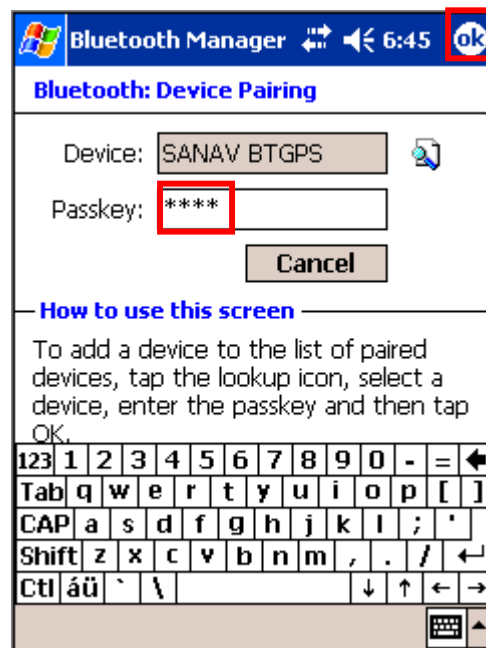
6 See the Bluetooth is adding device: SANAV BTGPS

7 Pairing completed. You can check your paired device in the Bluetooth Paired device or Connection Wizard window.

www.sanav.com

2.5 Reference GPS Map Software List

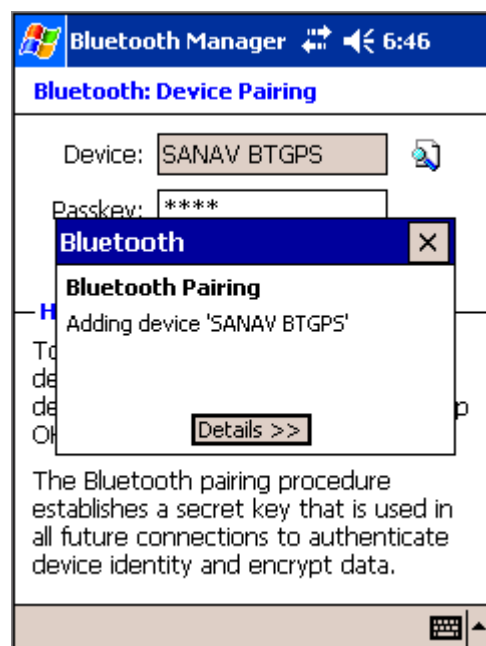The following map software list is for reference only. If you want to find the map software of specific area or country, please contact the local dealer for further information.
Note that all the products and brand names mentioned in this publication are trademarks or registered trademarks of their respective holders.

Pocket PC/Palm
- OziExplorerCE
- Fugawi for Pocket PC
- Microsoft Pocket Street
- Mapsonic GPS Navigation Software
- Maptech Pocket Navigator
- Handmark Street Finder
- Arcpad Street Map
- PocketMap Navigation USA 2003
- Pocket Terra
- Pocket Streetmap

2.6 Recharging the Batteries

1 Remove the battery door by sliding its downward.

2 Load 3 AAA batteries. Make sure the batteries are loaded in their correct polarity (+or -) of the terminals.

Note: —Do not mix old and new batteries.

—Do not mix alkaline, carbon-zinc or NiMH rechargeable batteries together.

3 Use the cigarette lighter inside your package. The DC output is designed as 5V at totally 3A with both mini-USB and DC jack. BT-48 and iPAQ Pocket PC can be both recharged at the same time in your vehicle.

4 Insert mini-USB connector into your BT-48 electrical outlet as below. Note that mini-USB has the groove design to prevent reverse phase. Once the BT-48 is connected with mini-USB, its charging LED indicator will be blinking twice, and then stay red still. After the batteries are full of electricity, the recharging LED indicator will be turned off automatically.

24

5 Also insert the other DC jack into the cradle/charger of your iPAQ Pocket PC.

6 Now you can use the recharging system and feel free of worrying about power consumption and operation time during the navigation in your vehicle.

www.sanav.com

3   **CARE & MAINTENANCE**

Cleaning

➢Before cleaning, make sure the unit is not in use and the power is off
➢Clean the body and the components by wiping with a soft dry cloth.
➢Do not use any kind of volatile or organic cleansers for it may result in corrosion.
➢No lubricator or chemical should be used to clean the unit; it may cause unexpected damage to the surface or inner electronic component.

Care & Maintenance

➢Do not place the subject in extreme temperature, sunlight, dust and dirt, in case of the unpredictable breakdown.
➢Keep the subject out of small children's reach.
➢Avoid placing the subject under rain, water splash, liquid or high humidity environments.
➢Never dissemble or alter the component inside the unit for it may result in electrical damage or injury.
➢Do not drop, shake or knock the subject for it may cause non-recoverable damages to the product.
➢Keep the cables from strong straining or folding for it may cause contact fault.
➢Avoid storing and using the unit to extreme magnetic fields.
➢Do not place or use the subject filled with highly flammable gas.

4 TROUBLESHOOTING

If you are experiencing difficulties with your BT-48, consult the following troubleshooting table for possible solutions.

BT-48 Problems		
Problem	Diagnosis	Solution
• Power failure	• Batteries are run out of electricity • Batteries are not loaded in correct polarity • Batteries are not matched	• Check the power source installation • Reconfirm the power source is normally applied • Check the batteries can be functioned or not • Do not mix different types of batteries together
• Module has no data output	• Power failure • Bluetooth connection fail • Baud rate is incorrect • Antenna is obstructively functioned	• Refer to the solution of power failure • Check Bluetooth connections • Fix the baud rate at 4800bps • Make the antenna locate in a full view of the sky
• GPS data is not in correct order • Module takes a longer time to start	• Module is in cold start mode	• Under cold start mode, the module is to be initialized for 45 seconds • Longer TTFF results from necessary accumulation of GPS data from each satellite or obstruction of the sky view.
• Pocket PC cannot find BT-48	• Pocket PC Bluetooth function is not open. • BT-48 is not powered. • BT-48 is in low Battery Mode. • Bluetooth connection is busy.	• Make sure the Pocket PC Bluetooth function is on • Replace the old batteries or recharge the batteries. • Reconnect Pocket PC and BT-48 once again. • Reset both Pocket PC and BT-48 and reconnect again.

If you encounter problems during installation and operation that cannot be solved from the provided information in this manual, please contact your dealer or our technical support.

Tel: +886-2-26879500
Fax: +886-2-26878893
E-Mail: **sanav@sanav.com**

5 WARRANTY

Warranty Time Period and Repair Coverage

SAN JOSE NAVIGATION, INC. warrants BT-48 to be free from all defects and malfunctions in materials and workmanship for a period of one year from the original purchase date from San Jose Navigation or authorized dealers. If the equipment functions improperly during the warranty period, San Jose Navigation will either repair or replace the unit without charge. Such repair service will include necessary adjustment, remanufacture, and replacement. The product should be returned freight-prepaid by the purchaser within valid warranty period. **Notice that you must contact San Jose Navigation for a RMA (Return Material Authorization) number before returning the goods for repair**.
Telephone assistance will also be provided during the warranty period.

Limitations

This warranty is limited only to the repair or replacement of defective parts confirmed by San Jose Navigation to be a result of faulty materials or workmanship. Instruments mechanically or physically damaged due to the following conditions are beyond our warranty:

➢ **Neglect, misuse or abuse, such as incorrect testing, installation, or operation.**
➢ **Place subject in extreme environments beyond the limits of the specifications.**
➢ **Subjected to disassembling, soldering, alteration, unauthorized repair, and electrical shock by nature.**
➢ **Any incidental or consequential losses or damages result from the purchase.**
➢ **Disaster, accident, cost or loss of any substitutive equipment.**

For damages caused under the above conditions, we'll contact you to discuss replacement options.

SANJOSE NAVIGATION, INC.
9F NO. 105 SHI-CHENG ROAD, PAN-CHIAO CITY
TAIPEI HSIEN, TAIWAN, R.O.C.
TEL: 886-2-26879500
FAX: 886-2-26878893
www.sanav.com