

Freedom X Combox Owner's Guide

Model Number/s: 808-0822 (RV-C), 808-0822-01 (NMEA2000)



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⚠️ DANGER

RISK OF ELECTRIC SHOCK AND EQUIPMENT DAMAGE

- Connect only to Safety Extra Low Voltage (SELV) circuits and power sources.
 - Do not expose the Combox to rain, snow, spray, or bilge water. For indoor use only.
 - Do not disassemble. No user serviceable parts inside.
 - Do not install and/or operate in compartments containing flammable materials or in locations that require ignition-protected equipment.
- Failure to follow these instructions will result in physical injury and/or equipment damage.

Exclusion for Documentation

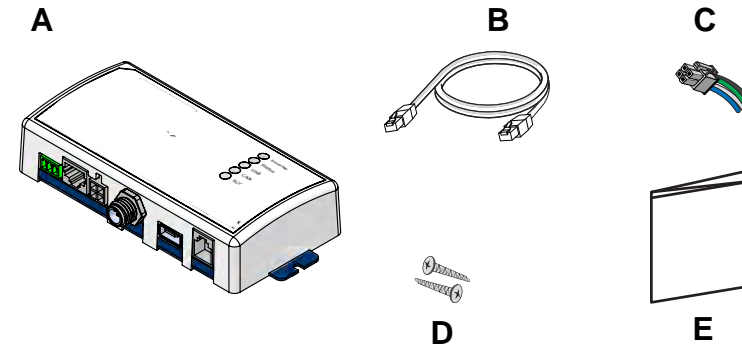
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NOTE: Visit <http://www.xantrex.com>, click Products, select a Product category, select a Product, and search the Product Documents panel for a translation of the English guide, if available.

Contact Information

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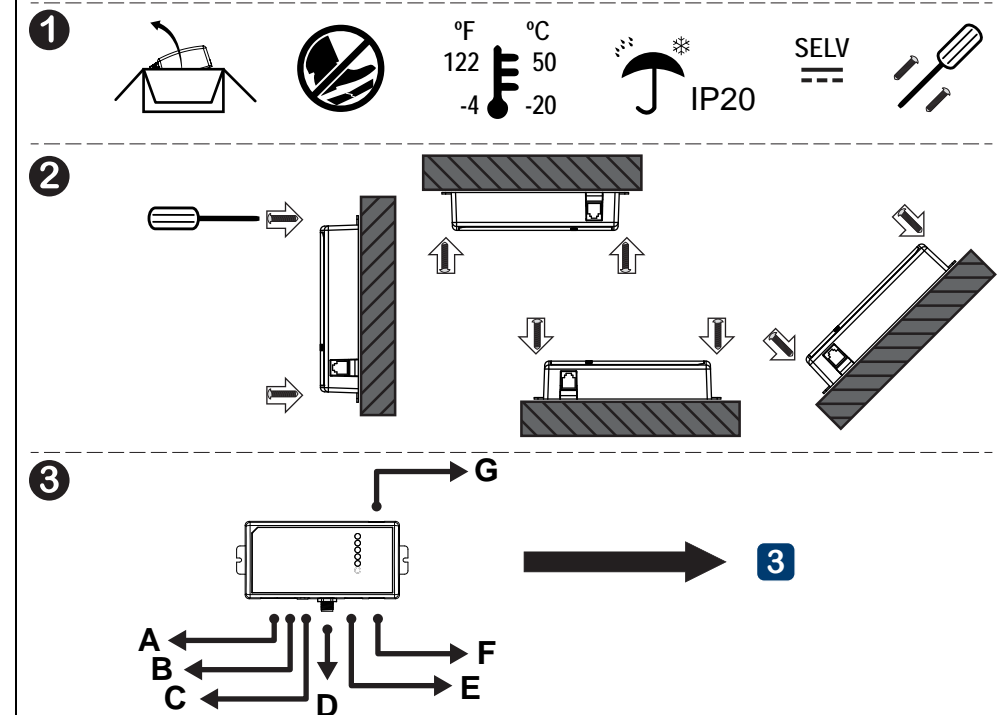
1 Introduction

The Freedom X Combox is a single-box communications hub from Xantrex that is capable of interfacing with Xantrex inverter and inverter/charger devices and allowing those devices to communicate with a compatible RV-C / NMEA2000 controller or display device. For example, many Freedom X and XC inverter/chargers used in recreational vehicles are able to connect to RV-C controllers using the Combox 808-0822. Similarly, Freedom X inverters made for marine vessels can use an NMEA2000-compatible controller using the Combox 808-0822-01. The Combox is also able to connect to the Freedom X remote panel (with or without Bluetooth) in order to access and control the same Xantrex devices.



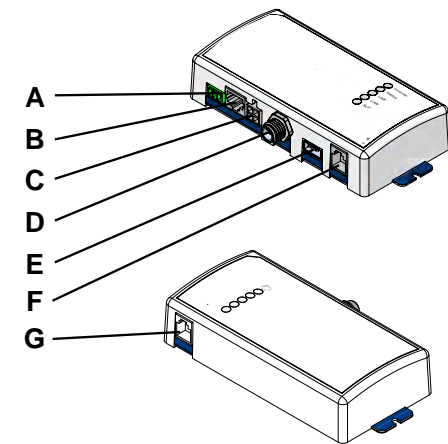
A	Freedom X Combox or Freedom X Combox Marine	D	2x mounting screws 6-20x½"
B	50-ft (15.2m) cable (PN: 31-6262-00) To order a 25-ft (7.6m) cable, contact customer service with product number 31-6257-00.	E	Owner's Guide
C	RV-C 4-pin connector with pigtail NMEA 2000 Micro-C connector and cable (not included)	NOTE:	If any of the items are missing, contact your Xantrex dealer.

2 Mounting



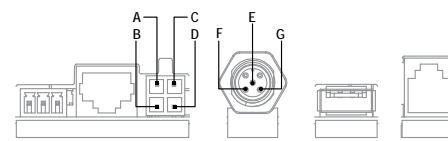
3 Ports

Ports



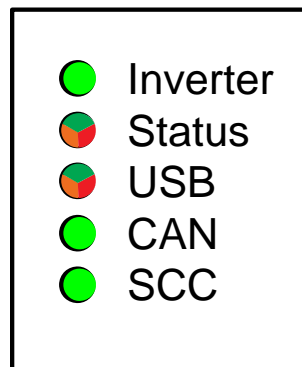
A	Non-functional port. ⚠️ RESERVED FOR FUTURE USE.
B	SCC (solar charge controller) port - connect to a Xantrex Solar Charge Controller device. ⚠️ RESERVED FOR FUTURE USE.
C	RV-C port - connect to an auxiliary device such as a compatible RV controller and monitor.
D	NMEA 2000 (Micro-C) port - connect to an auxiliary NMEA 2000 compatible device such as a vessel monitoring system (VMS).
E	USB host port - use for firmware upgrades and device configuration only. ⚠️ DO NOT USE TO POWER AND CHARGE USB DEVICES.
F	Remote display port - connect to a compatible Freedom X remote panel unit.
G	Host device port - power to the unit and also communications data are supplied here from a Xantrex Freedom X XC series device. See 5 for a typical connection setup.

Port Pin Assignments



A	CAN_Shield
B	CAN_L
C	COM
D	CAN_H
E	CAN_L
F	COM
G	CAN_H
⚠️	Match port pin assignments to connector pins carefully. See section 9.

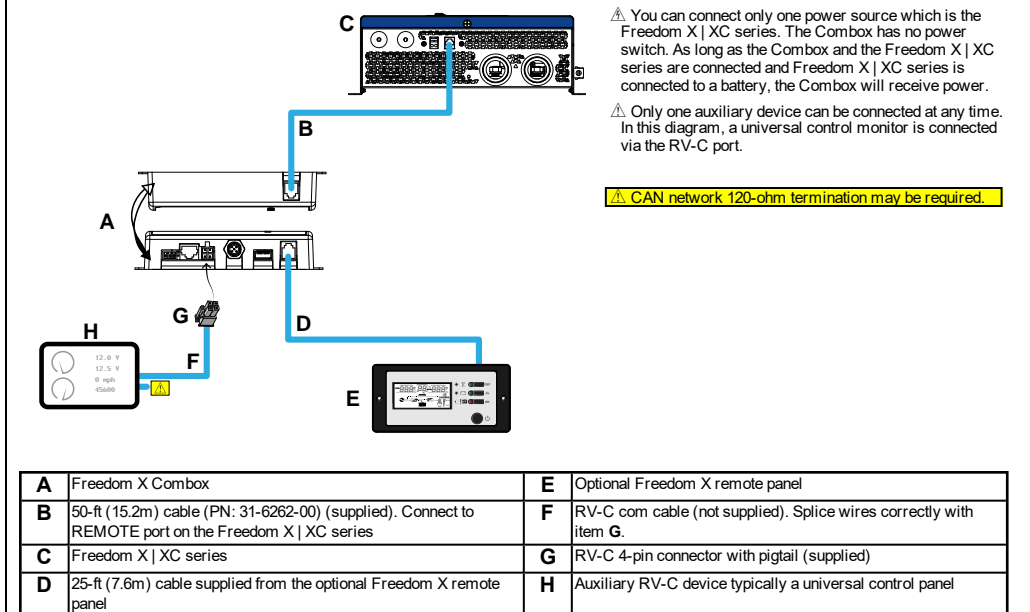
4 LED Status Indicators



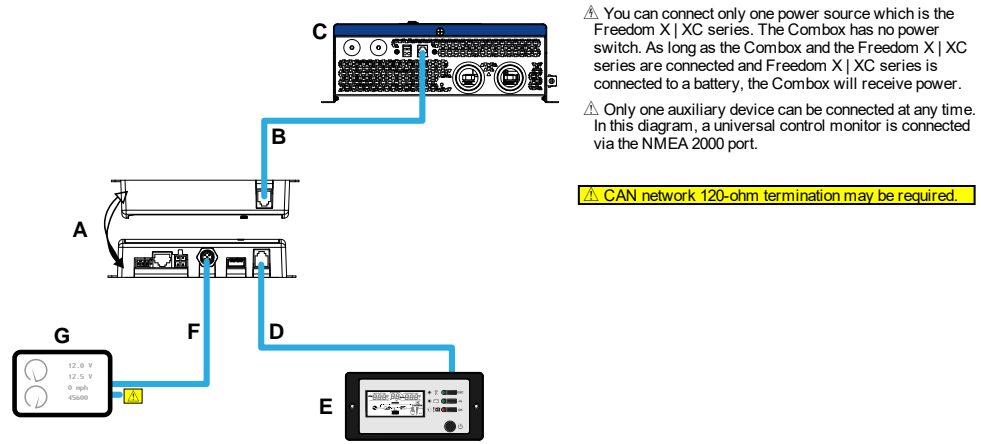
Device	Color	Description
Inverter	Green	The Combox is connected to a Freedom X XC series unit and the unit is ON.
	Flashing green	The Combox is connected to a Freedom X XC series unit and the unit is on Standby.
	Off	Freedom X XC series unit is disconnected from its battery source or Combox is disconnected from a Freedom X XC series unit.
Status	Green	Combox App activity
	Flashing red	Combox detected a USB and is loading up new firmware
	Red	USB-related operation is unsuccessful
	Flashing red	Active USB-related operation
	Amber	Active USB-related operation
USB	Green	USB-related operation ¹ is successful
	Flashing green	Active USB-related operation
	Red	USB-related operation is unsuccessful
	Flashing red	Active USB-related operation
	Flashing amber	Active USB-related operation
CAN	Green / Flashing green	CAN device detected and operating
	Off	No device detected
SCC	Green / Flashing green	SCC (Xantrex Solar Charge Controller) detected and operating
	Off	No device detected

¹ USB-related operations include loading and applying firmware updates, copying and applying device configurations, and data logging.

5 Typical Connection Diagram (RV-C)



6 Connection Diagram (NMEA2000)



A	Freedom X Combox marine	E	Optional Freedom X remote panel
B	50-ft (15.2m) cable (PN: 31-6262-00) (supplied). Connect to REMOTE port on the Freedom X XC series	F	NMEA 2000 and Micro-C connector cable (not supplied).
C	Freedom X XC series	G	Auxiliary NMEA 2000 device typically a universal control panel
D	25-ft (7.6m) cable supplied from the optional Freedom X remote panel		

7 Troubleshooting

PROBLEM	CAUSE	SOLUTION
The Combox's LED indicators do not seem to be lighting up.	The Combox is not receiving power.	Check that Freedom X XC series is connected to a battery. Check that 50-ft (15.2m) cable (PN: 31-6262-00) has been plugged correctly to both the Combox and Freedom X XC series's RJ-12 Remote ports. Check that a battery is connected to the Freedom X XC series for power.
The auxiliary RV-C/NMEA 2000 device is not receiving information.	RV-C 4-pin connector with pigtail/NMEA 2000 Micro-C connector is wired incorrectly. The Combox is not receiving power.	Check that CAN wires are terminated properly and correspond to the PORT (pin) assignments. Check that Freedom X XC series is powered and is connected by RJ-12 cable to the Combox.
The Freedom X remote panel device is not receiving information.	The Combox is not receiving power.	Check that Freedom X remote panel is powered and is connected by RJ-12 cable to the Combox.

8 Specifications

NOTE: Specifications are subject to change without prior notice.

Electrical Specifications	
Communication interfaces Serial	2 x labeled RJ-12 ports. Protection from interchange. Xantrex Device Supported: Freedom X XC series and Freedom X remote panel
SCC	1 x RJ-45 (Modbus) port
RV-C	CANbus terminal requires one RV-C 4-pin connector with pigtail or equivalent: 4-terminals, 16-24AWG, pin assignments to match port assignments.
NMEA 2000	NMEA 2000 (Micro-C) terminal requires matching male connector Zero network load
Data Interface USB 2.0-Host	USB-A. MSD protocol for firmware and device upgrades only. ⚠ DO NOT USE TO POWER AND CHARGE USB DEVICES.
Power supply (SELV) via RJ-12 Remote port of the Xantrex Freedom X XC series Xantrex Solar Charge Controller (via RJ-45 Modbus port)	Power input voltage range: 10 – 32V= Power input current including Freedom X remote panel: < 130mA at 12V= Standby power: 0.8W, < 70mA at 12V= Zero network load
Physical Specifications	
	A - 3.1 in. (79.5mm) including port B - 1.2 in. (30.7mm) C - 6 in. (151.5mm) with flanges
Weight	0.5 lb (227 g)

Physical Specifications																						
Housing / Mounting System	ABS Plastic, Wall-mount: 2-screw																					
IP rating / Mounting Location	IP 20, NEMA Type 1, Indoor only																					
Status Display	5 x LEDs																					
Temperature	Operating: -4 to 122°F (-20 to 50°C) Storage: -40 to 185°F (-40 to 85°C)																					
Humidity	Operating: < 95%, non-condensing Storage: < 95%, non-condensing																					
Regulatory																						
North America (US, CA) EMI	CFR 47 (FCC) Part 15 Class B, ISED Canada ICES-003 Class B																					
European Union (EU)	<table border="1"> <thead> <tr> <th>EU Mark</th> <th>Regulations</th> <th>Test Standard</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td rowspan="2">E-mark (808-0822 only)</td> <td>EN/EU Regulation</td> <td>ECE R10.06</td> <td>Automotive EMC – Regulation 10 - EMC emissions & transients</td> </tr> <tr> <td>Automotive EMC Standard</td> <td>EN 50498</td> <td>Automotive Electromagnetic Compatibility (EMC) – Emissions and immunity</td> </tr> <tr> <td rowspan="3">CE Marking</td> <td>EMC Directive 2014 / 30 / EU</td> <td>EN 55032, Class B EN 55035</td> <td>EMC multimedia equipment - emissions EMC multimedia equipment - immunity</td> </tr> <tr> <td>GPS Directive 2001 / 95 / EC</td> <td>EN/IEC 62368-1</td> <td>Audio/video, information and communication technology equipment – Part 1: Safety requirements</td> </tr> <tr> <td>RoHS³ Directive 2011 / 65 / EU and (EU) 2015/863</td> <td>EN 50581 and EN 62321</td> <td>Health Safety – Restriction of Hazardous Substances</td> </tr> </tbody> </table>	EU Mark	Regulations	Test Standard	Comments	E-mark (808-0822 only)	EN/EU Regulation	ECE R10.06	Automotive EMC – Regulation 10 - EMC emissions & transients	Automotive EMC Standard	EN 50498	Automotive Electromagnetic Compatibility (EMC) – Emissions and immunity	CE Marking	EMC Directive 2014 / 30 / EU	EN 55032, Class B EN 55035	EMC multimedia equipment - emissions EMC multimedia equipment - immunity	GPS Directive 2001 / 95 / EC	EN/IEC 62368-1	Audio/video, information and communication technology equipment – Part 1: Safety requirements	RoHS ³ Directive 2011 / 65 / EU and (EU) 2015/863	EN 50581 and EN 62321	Health Safety – Restriction of Hazardous Substances
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9 Components

To order Xantrex products, contact an authorized Xantrex dealer. The Freedom X Combox requires one power source.

	Compatible devices for both models	Freedom X series Compatible PNs: 817-1000, 817-2000, 817-2000-12, 817-2000-21, 817-3000
	Compatible devices for RV-C model	Freedom XC series Compatible PNs: 817-1050, 817-2080, 817-2080-12
	Optional	Freedom X remote panel with 25-ft com cable Compatible PNs: 808-0817-01, 808-0817-02
	Optional	Patch cable with RJ-45 connectors
	Supplied	50-ft RJ-12 6-conductor com cable PN: 31-6262-00
	Optional	25-ft RJ-12 6-conductor com cable PN: 31-6257-00
	Supplied	RV-C 4-pin connector with pigtail