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SeaLINK+232

User Manual | 2101



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Introduction

Overview

The Sealevel Systems **SeaLINK+232** equips the PC with 1 USB to RS-232 Asynchronous serial port providing a versatile interface for common RS-232 needs (i.e., modem, mouse, and plotter). The advantage of this product over more traditional approaches is that it doesn't require opening the computer case, nor does it require resources such as I/O ports or IRQs. It does require a system that supports USB both in terms of hardware and operating system.

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Before You Get Started

What's Included

The SeaLINK+232 is shipped with the following items. If any of these items is missing or damaged, contact the supplier.

- **SeaLINK+232 USB to RS-232 Serial I/O Adapter**
- **USB Cable Part Number CA179 for Connecting to Upstream Host/Hub**

Advisory Conventions



Warning
The highest level of importance used to stress a condition where damage could result to the product, or the user could suffer serious injury.



Important
The middle level of importance used to highlight information that might not seem obvious or a situation that could cause the product to fail.



Note
The lowest level of importance used to provide background information, additional tips, or other non-critical facts that will not affect the use of the product.

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Installation & Configuration

Software Installation

Windows Installation



Do not connect the device to a USB port until the software is installed.



Only users running Windows 7 or newer should utilize these instructions for accessing and installing the appropriate driver via Sealevel's website. If you are utilizing an operating system prior to Windows 7, please contact Sealevel by calling 864.843.4343 or emailing support@sealevel.com to receive access to the proper driver download and installation instructions.

1. Begin by locating, selecting, and installing the correct software from the Sealevel software driver database.
2. Type in or select the part number (#**2101**) for the adapter from the listing.
3. Select "Download Now" for SeaCOM for Windows.
4. The setup files will automatically detect the operating environment and install the proper components. Follow the information presented on the screens that follow.
5. A screen may appear with text similar to: "The publisher cannot be determined due to the problems below: Authenticode signature not found." Please click the 'Yes' button and proceed with the installation. This declaration simply means that the operating system is not aware of the driver being loaded. It will not cause any harm to your system.
6. During setup, the user may specify installation directories and other preferred configurations. This program also adds entries to the system registry that are necessary for specifying the operating parameters for each driver. An uninstall option is also included to remove all registry/INI file entries from the system.
7. The software is now installed, and you can proceed with the hardware installation.

To confirm that the SeaCOM driver has been successfully installed, click on the 'Start' button, and then select 'All Programs'. You should see the 'SeaCOM' program folder listed.

You are now ready to proceed with connecting the 2101 to your system. Refer to the Hardware Installation section for details.



Windows NT is not USB aware and thus cannot support this device.

Linux Installation



You MUST have "root" privileges to install the software and drivers.



The syntax is case sensitive.

SeaCOM for Linux can be downloaded here: https://www.sealevel.com/support/software-seacom-linux/. It includes the **README** and the **Serial-HOWTO** help files (located at seacom/dox/howto). This series of files both explains typical Linux serial implementations and informs the user about Linux syntax and preferred practices.



User can use a program such as 7-Zip to extract the tar.gz file.

In addition, the software selectable interface settings can be accessed by referencing **seacom/utilities/2101mode.**

For additional software support, please call Sealevel Systems' Technical Support, (864) 843-4343. Our technical support is free and available from 8:00 AM - 5:00 PM Eastern Time, Monday through Friday. For email support contact: support@sealevel.com.

Hardware Installation

The **SeaLINK+232** can be connected to any Upstream Type “A” port either at the PC host or an Upstream Hub, and since it is hot pluggable, there is no need to power down your computer prior to installation. The **SeaLINK+232** requires no user hardware configuration. Once you have installed the software simply plug the **SeaLINK+232** into an available USB port. The drivers that were installed during setup will automatically be used to configure the adapter. You should see one or more “New Hardware Found”, indicating the actual port being created. If you view your systems’ Device Manager at this point, you should have a new “COM” port in the Ports (COM & LPT) Device Class. You can access your new COM: port by using the assigned COM: identifier. This assignment will vary from system to system. At this point, the hardware is recognized. To verify operation, use Sealevel Systems supplied WinSSD diagnostic utility. WinSSD can be found in the Start, Programs group.

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Technical Description

The **SeaLINK+232** utilizes a USB UART. This chip features programmable baud rate, data format, 128-byte Dual Port TX Buffer, and 384-byte Dual Port RX Buffer. The RS-232 transceiver supports data rates up to 460.8K baud. Refer to Appendix C for cable length limitations.

Features

- Hot-Pluggable device that doesn't require opening the case
- No system resources are required (i.e., I/O ports or IRQs)
- LED status indicators for "USB Enabled", "TD", and "RD"

Connector Pin Assignments

RS-232 Signals (DB-25 Female)

Signal	Name	Pin #	Mode
TD	Transmit Data	2	Output
RTS	Request To Send	4	Output
DTR	Data Term Ready	20	Output
GND	Ground	7	
RD	Receive Data	3	Input
DCD	Data Carrier Detect	8	Input
DSR	Data Set Ready	6	Input
CTS	Clear To Send	5	Input
RI	Ring Indicator	22	Input



These assignments meet EIA/TIA/ANSI-232 DTE specifications for DB-25 type connectors.

Specifications

Environmental Specifications

Specification	Operating	Storage
Temperature Range	0º to 70º C (32º to 158º F)	-50º to 105º C (-58º to 221º F)
Humidity Range	10 to 90% R.H. Non-Condensing	10 to 90% R.H. Non-Condensing

Manufacturing

All Sealevel Systems Printed Circuit boards are built to UL 94V0 rating and are 100% electrically tested. These printed circuit boards are solder mask over bare copper or solder mask over tin nickel.

Power Consumption

Supply line	+5 VDC
Rating	50 mA

Physical Dimensions

Package Length	3.8 inches (9.66 cm)
Package Width	2.3 inches (5.84 cm)
Package Height	1.0 inches (2.54 cm)

Appendix A – Troubleshooting

The adapter should provide years of trouble-free service. However, in the event that device appears to not be functioning incorrectly, the following tips can eliminate most common problems without the need to call Technical Support.

1. If your adapter isn't working, first check to make sure that USB support is enabled in the System BIOS and it is functioning properly in the operating system. This can be done by using either the Windows 98/ME or Windows 2000 Device Manager.
2. Ensure that the Sealevel Systems software has been installed on the machine so that the necessary files are in place to complete the installation.
3. When the **SeaLINK+232** is configured properly, the USB Enabled LED (EN) will be lit. This should allow you to use Sealevel's WinSSD utility and the supplied loopback plug to check communications. The supplied loopback plug connects TD to RD. If you decide to test the Modem Control Signals, a full pin loopback plug will be required. Details on loopback plugs are included within WinSSD. Contact Sealevel Systems if you need further assistance
4. When testing the **SeaLINK+232** in loopback mode, you should see both the TD and RD LED's flashing as well as seeing echoed data on the screen. The loopback test first transmits a HEX pattern, 55AA, and then an ASCII string of data. If this test passes, then the **SeaLINK+232** is ready for use in your application.

If these steps do not solve your problem, please call Sealevel Systems' Technical Support, (864) 843-4343. Our technical support is free and available from 8:00 AM – 5:00 PM Eastern Time, Monday through Friday. For email support contact: support@sealevel.com.

Appendix B – How To Get Assistance

Please refer to: Appendix A -- Troubleshooting Guide prior to calling Technical Support.

1. Begin by reading through the Troubleshooting Guide in Appendix A. If assistance is still needed, please see below.

2. When calling for technical assistance, please have your user manual and current adapter settings. If possible, please have the adapter installed in a computer ready to run diagnostics.

3. Sealevel Systems provides an FAQ section on its web site. Please refer to this to answer many common questions. This section can be found at http://www.sealevel.com/faq.asp.

4. Sealevel Systems maintains a web page on the Internet. Our home page address is www.sealevel.com. The latest software updates, and newest manuals are available via our web site.

5. Technical support is available Monday to Friday from 8:00 AM to 5:00 PM Eastern Time. Technical support can be reached at (864) 843-4343.

RETURN AUTHORIZATION MUST BE OBTAINED FROM SEALEVEL SYSTEMS BEFORE RETURNED MERCHANDISE WILL BE ACCEPTED. AUTHORIZATION CAN BE OBTAINED BY CALLING SEALEVEL SYSTEMS AND REQUESTING A RETURN MERCHANDISE AUTHORIZATION (RMA) NUMBER.

Appendix C – Electrical Interface

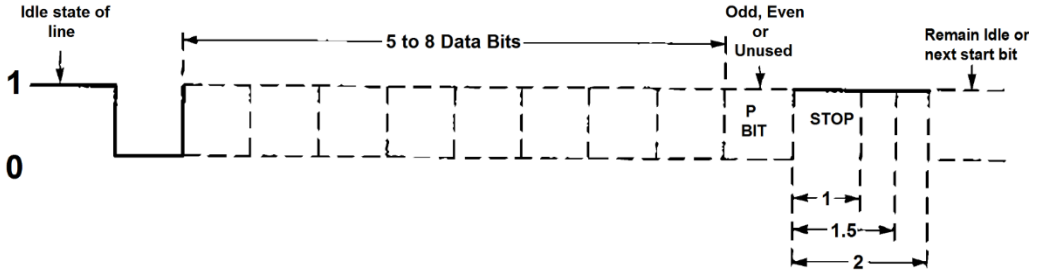
RS-232

Quite possibly the most widely used communication standard is RS-232. This implementation has been defined and revised several times and is often referred to as RS-232 or EIA/TIA-232. The IBM PC computer defined the RS-232 port on a 9 pin D sub connector and subsequently the EIA/TIA approved this implementation as the EIA/TIA-574 standard. This standard is defined as the *9-Position Non-Synchronous Interface between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange*. Both implementations are in widespread use and will be referred to as RS-232 in this document. RS-232 is capable of operating at data rates up to 20 Kbps at distances less than 50 ft. The absolute maximum data rate may vary due to line conditions and cable lengths. RS-232 is a single ended or unbalanced interface, meaning that a single electrical signal is compared to a common signal (ground) to determine binary logic states. The RS-232 and the EIA/TIA-574 specification define two types of interface circuits, Data Terminal Equipment (DTE) and Data Circuit-Terminating Equipment (DCE). The IC485+ is a DCE device.

Appendix D – Asynchronous Communications

Serial data communications implies that individual bits of a character are transmitted consecutively to a receiver that assembles the bits back into a character. Data rate, error checking, handshaking, and character framing (start/stop bits) are pre-defined and must correspond at both the transmitting and receiving ends.

Asynchronous communications is the standard means of serial data communication for PC compatibles and PS/2 computers. The original PC was equipped with a communication or COM: port that was designed around an 8250 Universal Asynchronous Receiver Transmitter (UART). This device allows asynchronous serial data to be transferred through a simple and straightforward programming interface. A start bit, followed by a pre-defined number of data bits (5, 6, 7, or 8) defines character boundaries for asynchronous communications. The end of the character is defined by the transmission of a pre-defined number of stop bits (usually 1, 1.5 or 2). An extra bit used for error detection is often appended before the stop bits.



Asynchronous Communications Bit Diagram

This special bit is called the parity bit. Parity is a simple method of determining if a data bit has been lost or corrupted during transmission. There are several methods for implementing a parity check to guard against data corruption. Common methods are called (E)ven Parity or (O)dd Parity. Sometimes parity is not used to detect errors on the data stream. This is referred to as (N)o parity. Because each bit in asynchronous communications is sent consecutively, it is easy to generalize asynchronous communications by stating that each character is wrapped (framed) by pre-defined bits to mark the beginning and end of the serial transmission of the character. The data rate and communication parameters for asynchronous communications must be the same at both the transmitting and receiving ends. The communication parameters are baud rate, parity, number of data bits per character, and stop bits (i.e., 9600, N, 8, 1).

Appendix E – Compliance Notices

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in such case the user will be required to correct the interference at the user's expense.

This is a Class A Product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures to prevent or correct the interference.

Always use cabling provided with this product if possible. If no cable is provided or if an alternate cable is required, use high quality shielded cabling to maintain compliance with FCC/EMC directives.

Warranty

Sealevel's commitment to providing the best I/O solutions is reflected in the Lifetime Warranty that is standard on all Sealevel manufactured I/O products. We are able to offer this warranty due to our control of manufacturing quality and the historically high reliability of our products in the field. Sealevel products are designed and manufactured at its Liberty, South Carolina facility, allowing direct control over product development, production, burn-in and testing. Sealevel achieved ISO-9001:2015 certification in 2018.

Warranty Policy

Sealevel Systems, Inc. (hereafter "Sealevel") warrants that the Product shall conform to and perform in accordance with published technical specifications and shall be free of defects in materials and workmanship for the warranty period. In the event of failure, Sealevel will repair or replace the product at Sealevel's sole discretion. Failures resulting from misapplication or misuse of the Product, failure to adhere to any specifications or instructions, or failure resulting from neglect, abuse, accidents, or acts of nature are not covered under this warranty.

Warranty service may be obtained by delivering the Product to Sealevel and providing proof of purchase. Customer agrees to ensure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to Sealevel, and to use the original shipping container or equivalent. Warranty is valid only for original purchaser and is not transferable.

This warranty applies to Sealevel manufactured Product. Product purchased through Sealevel but manufactured by a third party will retain the original manufacturer's warranty.

Non-Warranty Repair/Retest

Products returned due to damage or misuse and Products retested with no problem found are subject to repair/retest charges. A purchase order or credit card number and authorization must be provided in order to obtain an RMA (Return Merchandise Authorization) number prior to returning Product.

How to obtain an RMA (Return Merchandise Authorization)

If you need to return a product for warranty or non-warranty repair, you must first obtain an RMA number. Please contact Sealevel Systems, Inc. Technical Support for assistance:

Available	Monday – Friday, 8:00AM to 5:00PM EST
Phone	864-843-4343
Email	support@sealevel.com

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