

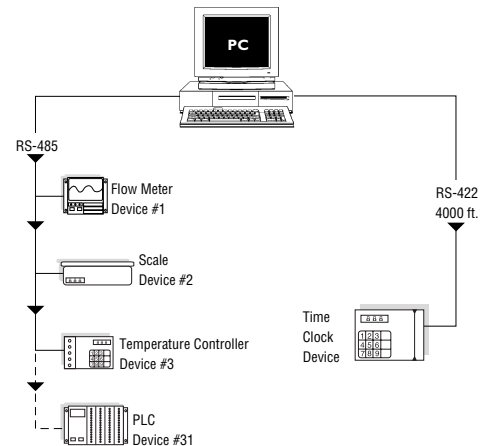
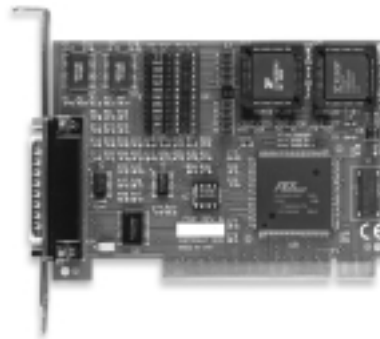
RS-422/485 Specification

The RS-422 electrical specification allows very long distance (4000 ft. at 9600 bps) communications with virtually error free differential drive characteristics. RS-422, like RS-232, is intended as a single-node protocol, i.e. typically only one RS-422 device is connected to a single port. RS-485 is optimized for "party-line" or multi-drop connections, where the devices (up to 31) are polled individually. RS-422 signal levels meet the standard electrical specification defined in RS-449 and EIA-530. Equipment complying with RS-449 and EIA-530 specifications can be interfaced using a simple adapter cable. Contact Sealevel Systems' Technical Support for specific information regarding adapter cables.

RS-422/485 Serial I/O

INDUSTRIAL COMMUNICATIONS

Industrial communications is our specialty. After all, we introduced the first RS-422/485 card back in the mid 80's. Whether you are connecting a single device over a short distance or a multi-drop RS-485 network between multiple buildings, we have the products to fit your application. All of our new products include Quad speed data rate support, enhanced software utilities and our revolutionary Auto Enable feature. Quad speed data rates allow your high-speed applications to operate without the PC bottleneck. We include hardware onboard allowing the card to run at 460K, 230K, 115K and other standard PC data rates. Our enhanced software utilities include new Windows Advanced COM: drivers, help files, INF files and utilities to simplify installation in Windows, Linux, QNX, and DOS. Each is designed to simplify installation. Our Auto Enable feature enables and disables the RS-485 line driver automatically, eliminating the need for specialized RS-485 software drivers. See our explanation and diagram of our Auto Enable feature on Page 11.



IC485

Our IC485 family of interface converters allow a standard RS-232 port to communicate with an individual RS-422 device or with multiple devices within a RS-485 network. The IC485 supports RS-422 full duplex mode as well as RS-485 full or half duplex master and slave modes. An isolated version is available providing immunity from ground loops and surges. Connection to external devices is provided by a six position screw terminal block on the board. Provisions for strain relief are made within the case by a cable clamp/screw combination. This eliminates unwanted wire disconnects once the screw terminals are wired.

Unique Features

- RS-422 full duplex support
- RS-485 full or half duplex master and slave support
- RS-485 modes supported include RTS, data enable, and always enable
- Part #s 1102 and 1103 provide Auto RS-485 driver/receiver enable
- Isolated version also available providing immunity from ground loops and surges
- Supports data rates up to 115.2K bps
- Selectable 120 ohm line termination and 1K pull up/pull down biasing
- Onboard LEDs illuminate for Transmit and Receive
- Sealevel Software RTS control drivers provided to simplify RS-485 communications in Windows

Technical Specifications

Number of Ports 1
 Max. data rate 115.2K
 Max. data distance Up to 4000 ft.
 Operating temperature 0-50° C
 Storage temperature -20-70° C
 Humidity range 10-90% R.H.
 Power Specifications From AC adapter
 Connector(s) (1) DB25S (Female) to 6 position screw terminal providing (TX±, RX±, Ground, and shield)
 Physical dimensions 3.8" L x 2.3" W x 1.0" H (9.65 x 5.84 x 2.54 cm)



ORDERING INFORMATION

Description	Part No.	Price
RS-232 to RS-422/485 Interface Converter	1101	\$99.00
RS-232 to RS-422/485 Interface Converter	1102	\$109.00
RS-232 to RS-422/485 Iso. Interface Converter	1103	\$129.00
Cable Options		
DB9F/25M 6 ft. cable	CA177	\$7.95
DB25M/F 6 ft. cable	CA104	\$7.95



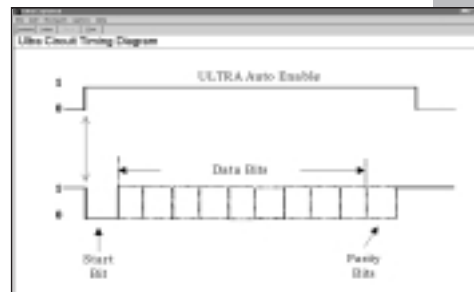
Sealevel Systems Explains — "RS-485"

"Windows® RS-485"

Today's mainstream operating systems such as Windows and Linux abstract the application program from the specific details of I/O device programming. This means that software cannot directly control the hardware, and must make calls to a driver substructure. Implementation of features not supported by existing drivers is very difficult since lower level I/O handling is required. RS-485 communication has been discouraged under these operating systems because RS-485 is not supported in the standard communications driver.

Windows® RS-485 Solutions

In order for RS-485 communications to take place, the user must either add an RS-485 compatible communications driver replacement, or the user can simply install an ULTRA series card. The ULTRA cards handle the low level RS-485 driver maintenance automatically; therefore, communications driver replacements are not necessary. Initial development can be targeted for RS-232, debugged, tested and then implemented as RS-485. The ULTRA cards were designed to allow simple integration of RS-485 networks within DOS, Windows and Linux with little or no programming changes. Install multiple ULTRA cards and maximize your RS-485 device control. For cards without the auto enable hardware circuit, Sealevel Systems includes our RS-485 auto enable driver software for 95/98/NT.

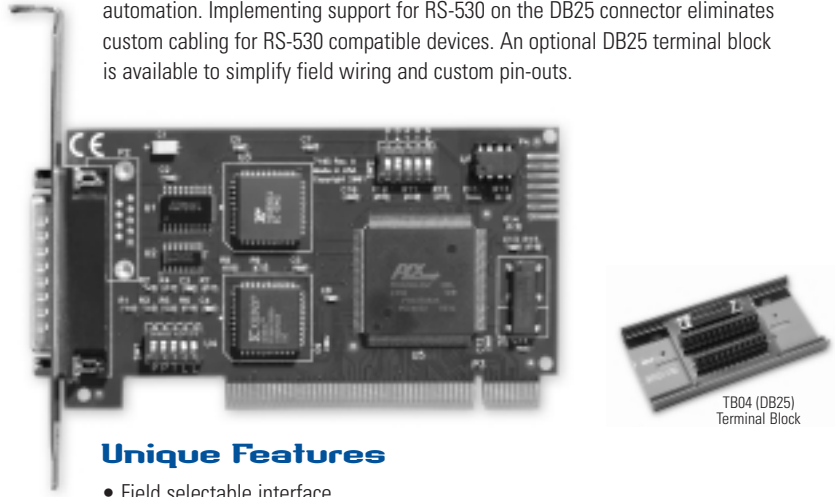


PCI 1 Port RS-422/485/530 Interface

NEW PRODUCT

ULTRA 485.PCI

The ULTRA 485.PCI provides a single RS-422/485/530 serial port for control and automation. Implementing support for RS-530 on the DB25 connector eliminates custom cabling for RS-530 compatible devices. An optional DB25 terminal block is available to simplify field wiring and custom pin-outs.



Unique Features

- Field selectable interface
- Automatically handles RS-485 enable and disable
- 16850 buffered UART standard with deep 128 byte FIFO supporting PC data rates up to 460.8K bps
- Includes Windows advanced COM: drivers, utilities, INF files and help files to simplify installation
- Supports Windows, Linux, QNX, DOS and other operating systems.

Technical Specifications

Communications chip16850
 Number of ports1
 Max. data rate460K bps
 Max. data distanceup to 4000 ft.
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity range10-90% R.H.
 Current specifications+5V @ 380mA,
 Connector(s)(1) DB25P
 Physical dimensions4.9" L x 2.6" H (12.45 x 6.60 cm)

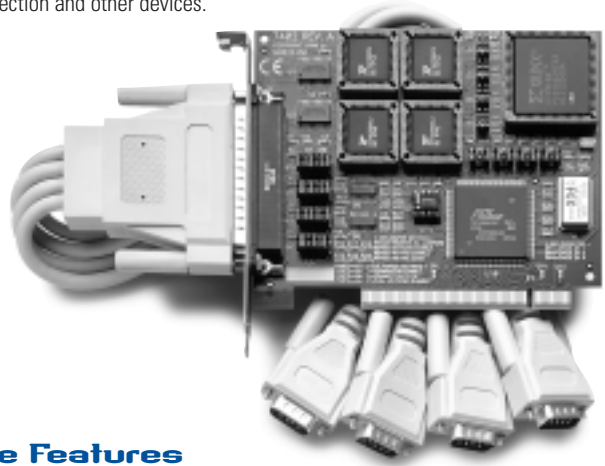
ORDERING INFORMATION		
Description	Part No.	Price
1 Port RS-422/485/530	7105	\$159.00
<u>Cable Options</u>		
DB25 Terminal Block	TB04	\$29.95
TB04 and CA104 Kit	KT104	\$36.95
DB25F/25M Cable	CA104	\$7.95
DB25F/9M Cable	CA175	\$9.95
(Sealevel DB9 RS-422 pinout)		



PCI 4 Port RS-422/485 Interface

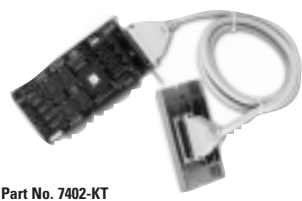
ULTRA COMM+422.PCI

The ULTRA COMM+422.PCI provides four PCI bus RS-422/485 Async links for data collection and other devices.



Unique Features

- Each port designed to maximize Windows, Linux, QNX, and DOS communications
- Onboard RS-485 auto enable circuit
- Full array of enhanced UART options
- Supports standard PC data rates up to 460.8K bps
- Onboard interrupt status port provides efficient interrupt sharing
- Includes Windows Advanced COM drivers, utilities, INF files and help files to simplify installation



Part No. 7402-KT
 Order our 3440-KT, 7402-KT or 7404-KT and receive board, terminal block and cable. This universal cable/wiring option can simplify your cable connections – another Simpler Solution from Sealevel Systems.

Technical Specifications

Communications chip16550
 Number of ports4 RS-422/485
 Max. data rate460.8K bps
 Max. data distanceup to 4000 ft.
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity range10-90% R.H.
 Current specifications+5V @ 620mA,
 Connector(s)DB37 to (4) DB9P
 Cable length36" (91.44 cm)
 Physical dimensions5.2" L x 4.2" H (13.21 x 10.67 cm)

ORDERING INFORMATION		
Description	Part No.	Price
4 Port RS-422/485 (DB9 Cable Included)	7402	\$339.00
w/16850 UART	7402-SE	\$379.00
w/Terminal Block and 6 ft. M/F Cable	7402-KT	\$366.00
<u>Cable Options</u>		
DB9 Terminal Block	TB05	\$19.95
TB05 and CA127 Kit	KT105	\$28.95
DB9 M/F Cable 6 ft.	CA127	\$9.95



USB 1 Port RS-422/485/530 Adapter

NEW
PRODUCT

SeaLINK+485®

Add a USB RS-422/485/530 serial port to your system. Our SeaLINK® adapter provides USB connectivity to legacy or non-USB compliant devices. Now your non-USB peripherals can have the same connection simplicity and ease of use as USB aware peripherals. SeaLINK adapters get their power directly from the USB cable, eliminating the need for external power.

Unique Features

- Power obtained from USB cable - No external power required
- Automatic RS-485 data enable/disable
- High speed UART standard with 128 byte TX FIFO and 384 byte RX FIFO buffer supporting standard PC data rates up to 921.6K bps
- "Hot swapping" / Auto configuration
- Full RS-530 interface implemented to simplify cabling
- 6ft. high quality USB cable and loopback plug included
- Includes advanced COM: drivers, utilities, INF files and help files to simplify installation in Windows 98/ME/2000, Linux and Macintosh O/S

Technical Specifications

Communications chip USB/UART ASIC
 Number of ports 1
 Max. data rate 921K bps
 Max. data distance up to 4000 ft.
 Operating temperature 0-50° C
 Storage temperature -20-70° C
 Humidity range 10-90% R.H.
 Power Specifications From USB Cable
 Connector(s) (1) DB25P (Male)
 Physical dimensions 3.8" L x 2.3" W x 1.0" H (9.65 x 5.84 x 2.54 cm)



ORDERING INFORMATION

Description	Part No.	Price
1 Port RS-422/485/530	2102	\$129.00
<u>Cable Options</u>		
DB25 Terminal Block	TB04	\$29.95
TB04 and CA104 Kit	KT104	\$36.95
DB25F/9M Cable (Sealevel DB9 RS-422 Pinout)	CA175	\$9.95
DB25F/25M Cable	CA104	\$7.95

SERIAL I/O PRODUCTS

USB 2 and 4 Port RS-422/485 Adapters

NEW
PRODUCT

SeaPORT+2/485 and SeaPORT+4/485

Sealevel SeaPORT® USB serial I/O products provide two or four USB to RS-422/485 ports for Point of Sale (POS) and Factory Automation/Process control applications. Our SeaPORT adapters get their power directly from the USB cable, eliminating the need for external power.



Unique Features

- Power obtained from USB cable - No external power required
- "Hot swapping" / Auto configuration
- High speed UART standard with 128 byte TX FIFO and 384 byte RX FIFO buffer supporting standard PC data rates up to 921.6K bps
- 6ft. high quality USB cable and loopback plug included
- Terminates in DB9P Connectors
- Includes advanced COM: drivers, utilities, INF files and help files to simplify installation in Windows 98/ME/2000, Linux and Macintosh O/S

Technical Specifications

Communications chip USB/UART ASIC
 Number of ports 2/4
 Max. data rate 921K bps
 Max. data distance up to 4000 ft.
 Operating temperature 0-50° C
 Storage temperature -20-70° C
 Humidity range 10-90% R.H.
 Power Specifications From USB Cable
 Connector(s) (2) or (4) DB9P (Male)
 Physical dimensions 7.00" L x 5.25" W x 1.5" H
 (17.78 x 13.34 x 3.81 cm)

ORDERING INFORMATION

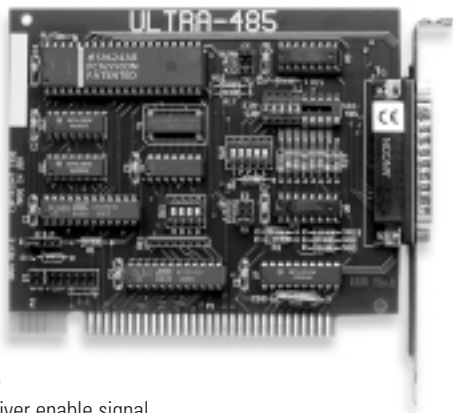
Description	Part No.	Price
2 Port RS-422/485	2202	\$279.00
4 Port RS-422/485	2402	\$369.00
<u>Cable Options</u>		
DB9 Terminal Block	TB05	\$19.95
Dual DB9 Terminal Block	TB06	\$24.95
TB05 and CA127 Kit	KT105	\$28.95
TB05 and (2) CA127	KT106	\$43.95
DB9F/25M RS-530 Cable	CA176	\$9.95
6 ft. USB A to B Cable	CA179	\$7.95



ISA 1 Port RS-422/485 Interface

ULTRA 485

The ULTRA 485 provides the PC with a direct RS-422/485 Asynchronous link to data collection and other devices.



Unique Features

- Automatic control of RS-485 driver enable signal
- Selectable COM: port addresses
- Selectable and shareable IRQ level (2-5, 7, 10-12 and 15)
- Automatically handles RS-485 enable and disable
- Compatible with existing communications drivers
- 16-bit addressing eliminates I/O conflicts
- Selectable termination, echo mode, two/four wire operation
- EIA-530 DTE pin-out on DB25P connector providing RTS, CTS, DCD, DSR and DTR
- Includes Windows advanced COM: drivers, utilities, INF files and help files to simplify installation
- Supports Windows, Linux, QNX, DOS and other operating systems.



Technical Specifications

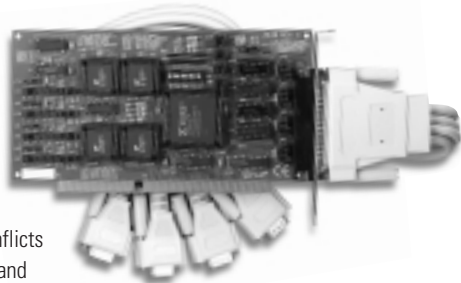
Communications chip16550
 Number of ports1
 Max. data rate115K bps
 Max. data distanceup to 4000 ft.
 RS-485 operationtwo or four wire
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity range10-90% R.H.
 Current specifications+5V @ 195mA,
 Connector(s)(1) DB25P
 Physical dimensions5.0" L x 4.2" H (12.70 x 10.66 cm)

ORDERING INFORMATION		
Description	Part No.	Price
1 Port RS-422/485	3055	\$149.00
w/16850 UART	3055-SE	\$159.00
<u>Cable Options</u>		
DB25 Terminal Block	TB04	\$29.95
TB04 and CA104 Kit	KT104	\$36.95
DB25F/25M Cable	CA104	\$7.95
DB25F/9M Cable	CA175	\$9.95
(Sealevel DB9 RS-422 pinout)		

ISA 4 Port Automatic RS-422/485 Interface

ULTRA COMM+422

The ULTRA COMM+422 provides the PC with four RS-422/485 Asynchronous links to data collection and other devices.



Unique Features

- 16-bit addressing eliminates I/O conflicts
- Selectable termination, echo mode and two/four wire operation
- Selectable and shareable IRQ level (2-5, 7, 10-12 and 15)
- Onboard interrupt status port for Windows flexibility
- DB9P connectors providing TD, RD, RTS, CTS
- Selectable address including COMM1: - COMM4 and other I/O addresses or 32 consecutive I/O locations
- Compatible with existing communications drivers
- Automatically handles RS-485 enable and disable
- Includes Windows advanced COM: drivers, utilities, INF files and help files to simplify installation
- Supports Windows, Linux, QNX, DOS and other operating systems.



Part No. 3440-KT
 Order our 3440-KT, 7402-KT or 7404-KT and receive board, terminal block and cable. This universal cable/wiring option can simplify your cable connections - another Simpler Solution from Sealevel Systems.



Technical Specifications

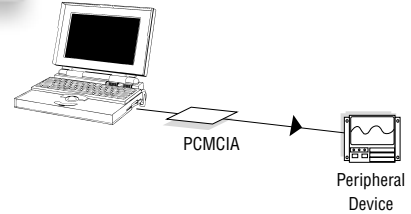
Communications chip16550
 Number of ports4 RS-422/485
 Max. data rate460K
 Max. data distanceUp to 4000 ft.
 RS-485 operationTwo or four wire
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity range10-90% R.H.
 Power requirements+5V @ 620mA
 Current specifications130mA
 Connector(s)Onboard DB37S to 4 DB9P
 Physical dimensions7.3" L x 4.2" H (18.54 x 10.67cm)

ORDERING INFORMATION		
Description	Part No.	Price
4 Port Automatic RS-422/485	3440	\$319.00
w/16850 UART	3440-SE	\$359.00
w/Terminal Block and 6ft. M/F Cable	3440-KT	\$346.00
<u>Cable Options</u>		
DB9 Terminal Block	TB05	\$19.95
TB05 and CA127 Kit	KT105	\$28.95
DB9 M/F Cable 6 ft	CA127	\$9.95

What is PCMCIA?

Most early laptops and notebooks handled I/O expansion through proprietary expansion slots. These slots provided limited expansion for specific peripherals such as modems and FAX peripherals. Mass storage peripherals were factory installed and could not be easily changed. Interconnectivity through local area networks offered limited performance through slow parallel port network interfaces.

During this time period, two standards organizations, JEIDA and PCMCIA, were working on the standardization of memory IC cards. These cards were designed as strictly non-volatile silicon storage. A memory only interface, PCMCIA Release 1.0 was introduced in September of 1990 and is identical to the JEIDA 4.0 standard. As the notebook market grew, the need for a standard I/O bus was seen. The PCMCIA groups saw an opportunity to meet this need with an expanded version of the 68 pin interface. Further development occurred, and within one year Release 2.0 of the standard was completed. Release 2.0 was a major update to Release 1.0 and included full hardware support for I/O devices. Release 2.0 coincided with JEIDA's 4.1 release and are identical. These standards are widely accepted today for adding peripheral devices to notebooks, PDAs



(Personal Digital Assistants) and PEN computers. Desktop PCs equipped with a PCMCIA drive can also take advantage of the "Plug and Play" features that PCMCIA cards offer.

"PCMCIA" and "Card and Socket Services"

Card and Socket Services are typically supplied by the PCMCIA slot provider (i.e. the notebook manufacturer or the PC drive manufacturer). Socket Services provides a standard interface to the higher level drivers and isolates the socket controller's specific hardware details. Socket Services provides the "BIOS" interface to the socket controller hardware. Card Services provides the interface to application

software and drivers. Card Services is responsible for allocating card resources and ensuring that card resources do not interfere with other system resources ("plug and play"). Card Services is typically implemented as a driver and loaded via CONFIG.SYS during boot.

PCMCIA I Port RS-530/422/485 Card

Ultra PC-SIO-485

The PC-SIO-485 card provides a single PCMCIA Async serial link to modems, terminals, printers or other data collection equipment.

Unique Features

- Single port Asynchronous RS-530/422/485
- Automatic RS-485 RTS Enable
- 16550 buffered UART standard
- Full array of enhanced UART options
- Interface cable included terminates in DB-25P Connector (EIA-530 pin-out)
- Includes Windows Advanced COM: drivers, utilities, INF files and help files to simplify installation
- "Hot-swapping"/Auto configuration standard
- SeaPC DOS client software enabler included
- Windows Auto RS-485 driver software included



Technical Specifications

Communications chip16550 UART
 Number of PortsSingle Port
 Max. Data Rate115K bps
 Max. Data DistanceUp to 4000 ft.
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity rage10-90%R.H.
 Current specifications+5V @ approx. 25mA
 Connector(s)DB-25P
 CompatibilityPCMCIA 2.01, JEIDA 4.1
 Physical DimensionsType II PCMCIA Card

ORDERING INFORMATION

Description	Part No.	Price
Ultra PC-SIO-485 (RS-530/422/485)	3602	\$199.00
<u>Cable Options</u>		
DB25 Terminal Block	TB04	\$29.95
TB04 and CA104 Kit	KT104	\$36.95
DB25F/25M Cable	CA104	\$7.95
DB25F/9M Cable	CA175	\$9.95
(Sealevel DB9 RS-422 pinout)		



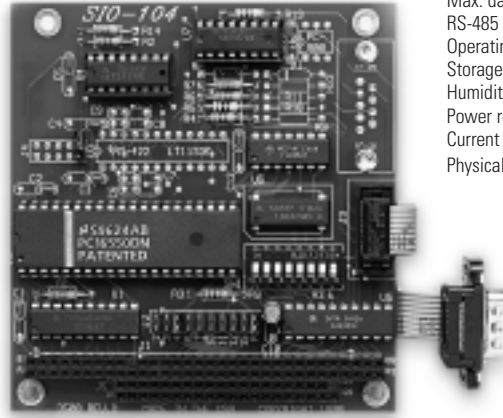
PC/104 I Port RS-422/485 Serial Module

SIO-104

The SIO-104 provides the PC/104 system with a direct RS-422/485 Asynchronous link to data collection and other devices. Distances of up to 4000 ft. are easily accommodated with the SIO-104 allowing an embedded control PC, located in the factory, to communicate with an observation PC, located in the front office. The RS-422 interface prevents line noise from causing data corruption.

Unique Features

- PC/AT compatible
- Selectable address including COM1: - COM4: or any other I/O address up to 3FF Hex
- Shareable IRQ level (2-7, 10-12 or 15)
- Windows Auto RS-485 driver software included
- RS-485 two or four wire operation
- RS-422 RTS and CTS "Handshake" signals provided
- DB9P interface cable included
- PC/104 form factor (3.6" x 3.8")
- Includes Windows Advanced COM: drivers, utilities, INF files and help files to simplify installation
- Supports Windows, Linux, QNX, DOS and other operating systems



Technical Specifications

Communications chip16550 UART
 Number of ports1
 Max. data rate115K bps
 Max. data distanceUp to 4000 ft. @ 9600 bps
 RS-485 operationTwo or four wire
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity range10-90% R.H.
 Power requirements+5V only operation
 Current specifications125mA
 Physical dimensions3.775" L x 3.550" H (9.588 x 9.017 cm)



ORDERING INFORMATION		
Description	Part No.	Price
Single Port RS-422/485	3500	\$149.00
<u>Cable Options</u>		
DB9 Terminal Block	TB05	\$19.95
TB05 and CA127 Kit	KT105	\$28.95
DB9M/F 6 ft. Cable	CA127	\$9.95

PC/104 4 Port RS-422/485 Serial Module

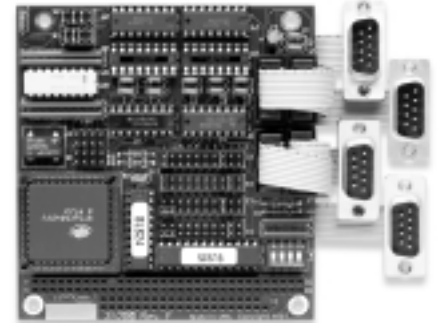
C4-104

The Sealevel Systems C4-104 provides the PC/104 system with four direct RS-422/485 Asynchronous links to data collection and other devices. The C4-104 allows embedded systems to communicate with and control terminals, PLCs and other equipment remotely at distances of up to 4000 ft. while maintaining extremely high reliability. This PC/104 module can be used in a variety of embedded industrial and networking applications requiring long distance or multi-drop communications.

ORDERING INFORMATION		
Description	Part No.	Price
Four Port RS-422/485	3520	\$249.00
<u>Cable Options</u>		
DB9 Terminal Block	TB05	\$19.95
TB05 and CA127 Kit	KT105	\$28.95
DB9M/F 6 ft. Cable	CA127	\$9.95

Unique Features

- Individually selectable IRQ level (2-7, 10-12 and 15) for each port
- Versatile addressing including COM1: - COM4: or other user selectable I/O addresses with PAL options
- Windows Auto RS-485 driver software included
- RTS and CTS "Handshake" signals provided
- Multiple cards can reside within the same system
- Four DB9P interface cables included
- PC/104 form factor (3.6" x 3.8")
- Onboard interrupt status port for Windows flexibility
- Includes Windows Advanced COM: drivers, utilities, INF files and help files to simplify installation
- Supports Windows, Linux, QNX, DOS and other operating systems



Technical Specifications

Communications chip16554
 Number of portsFour RS-422/485
 Max. data rate115K bps
 Max. data distanceUp to 4000 ft. @ 9600 bps
 RS-485 operationTwo or four wire
 Operating temperature0-50° C
 Storage temperature-20-70° C
 Humidity range10-90% R.H.
 Power requirements+5V only operation
 Current specifications130mA
 Physical dimensions3.775" L x 3.550" H (9.588 x 9.017 cm)

