SELECTING A SERIAL PROTOCOL CONVERTER, REPEATER OR ISOLATOR FOR YOUR NEXT PROJECT

B+B SmartWorx

Powered by ADVANTECH

Use the selection tables on p2 & p3 to quickly narrow your search for a serial protocol converter, repeater or isolator that best suits your next project.

There are a number of factors that contribute to the selection of the correct serial converter, repeater or isolator for your application. **Light Industrial** products are typically smaller and designed to attach directly to cables. They are usually not mounted. Sometimes, they are integrated into the cable itself. For the most part, they have a lower temperature rating and are not constructed as ruggedly as their heavy duty counterparts. **Heavy-Duty Versions** are designed to mount in a cabinet or directly to a panel. They have advanced EMC specifications to withstand electrical transients and support 2 kV or more isolation on the data lines.

HEAVY-DUTY – *see page 2*

RS-232 to RS-422 & RS-485 Adapters

These rugged, reliable serial converters, repeaters and isolators are ideal for demanding industrial applications.

- -40 to +80°C wide operating temperature – use with confidence in areas exposed to extreme temperatures
- 2 to 4 kV optical isolation - power surge, spike and ground loop protection in harsh electrical environments.
- Advanced, industrial compliances - UL 50, UL C1/D2, UL Listed or Recognized, EN 61000-6-1, EN 61000-6-2, IEEE 1613; NEMA TS1/TS2 traffic control applications
- DIN rail or panel mounting
- Modbus compatible - Modbus ASCII/RTU support for PLC, HMI, SCADA systems
- LED indicators - at-a-glance data and power status
- Automatic Send Data Control - no software drivers to install or manage
- Removable terminal blocks - plug in and out for easy wiring and field termination

LIGHT INDUSTRIAL – *see page 3*

RS-232 to RS-422 & RS-485 Adapters

These port-powered RS-232 to RS-422/485 converters change TD and RD RS-232 lines to RS-422/485 signals. Ideal for field service or where a power supply adds clutter and space is at premium.

- 0 to +60 °C operating temperature
- Easy, inline installation
- FCC, commercial CE compliances (no UL, other heavy-duty compliances)
- Port powered by RS-232 handshake lines - no power supply required
- Extend RS-232 signals to 4,000 feet (1,200meters)
- Automatic Send Data Control - no software drivers to install or manage
- Communicate at baud rates to 115.2 kbps
- Modbus compatibility
- No isolation

ABOUT B+B SMARTWORX

B+B SmartWorx designs and manufactures high-performance device networking & connectivity solutions that enable secure, reliable machine-to-machine (M2M) communications. Our serial converters and serial servers network-enable your serial equipment by converting traditional data networking protocols like Modbus for use on Ethernet networks, ultimately making it possible to monitor and control serial devices from virtually anywhere on the planet. These media conversion products allow your serial data to flow smoothly across any combination of copper cable, fiber optic, cellular or wireless connections.

B+B SmartWorx specializes in establishing network connectivity in harsh, inconvenient or remote environments, and in providing seamless connections for even the most complex network topologies. Backed by strong technical support, B+B products are known for being simple to order, simple to use and simple to install.

CUSTOM & OEM SERVICES

With in-house engineering and onsite manufacturing based in Ottawa IL USA, B+B SmartWorx products are easily modified for unique applications:

Custom Product Design & Modifications – Software/hardware, pinouts, power inputs, connectors, mounting, prototypes, low quantities, and more.

OEM Private Labeling – Custom labels, colors, cases, and documents expand your product offerings quickly.

PRODUCT ASSISTANCE

If you need product selection assistance, contact B+B SmartWorx technical support online.

HEAVY-DUTY SERIAL CONVERTERS & REPEATERS & ISOLATORS

| PRODUCT SELECTION GUIDE |

HEAVY-DUTY | RS-232 TO RS-422/485 CONVERTERS						HEAVY-DUTY | SERIAL REPEATERS & ISOLATORS					
											
Model Number	**485LDRC9**	**485DRCI**	**485DRCI-PH**	**SCP211T-DFTB3**	**SCP311T-DFTB3**	**232OPDR**	**485OPDR**	**232OPDRI**	**485OPDRI**	**232OPDRI-PH**	**485OPDRI-PH**
Key Features	*Dual RS-232 Connectors (terminal blocks & DB9). NEMA TS1/TS2.*	*Class 1/Division 2. Triple Isolation. Oil & Gas Applications.*	*Class 1/Division 2. IEC 61850. IEEE 1613. NEMA TS1/TS2. Power Utility Applications.*	*Non-isolated for In-Cabinet Applications.*	*Small Form Factor Panel Mount.*	*NEMA TS1/TS2.*	*NEMA TS1/TS2.*	*Class 1/Division 2. Triple Isolation. Oil & Gas Applications.*	*Class 1/Division 2. Triple Isolation. Oil & Gas Applications. NEMA TS1/TS2.*	*Class 1/Division 2. IEC 61850. IEEE 1613. NEMA TS1/TS2. Power Utility Applications.*	*Class 1/Division 2. IEC 61850. IEEE 1613. NEMA TS1/TS2. Power Utility Applications*
Isolation, 2kV	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Input Power	10 to 30 VDC	10 to 48 VDC	10 to 48 VDC	10 to 30 VDC	10 to 30 VDC	10 to 30 VDC	10 to 30 VDC	10 to 48 VDC	10 to 48 VDC	10 to 48 VDC	10 to 48 VDC
Industrial Rating	Light	Light	Heavy	Heavy	Heavy	Light	Light	Light	Light	Heavy	Heavy
UL Rating	UL Recognized	UL 508	UL 508	UL 508	UL 508	UL Recognized	UL Recognized	UL Listed	UL Listed	UL Listed	UL Listed
Class1/Division 2 Hazardous Locations	–	✔	✔	–	–	–	–	✔	✔	✔	✔
Dataline Surge Protection	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
RS-232 Connector	Terminal Blocks (DB 9 option)	DB9	DB9	DB9	DB9	Terminal Block	–	DB9	–	DB9	–
RS-422/485 Connector & Power	Terminal Block	Removable Terminal Block	Removable Terminal Block	Removable Terminal Block	Removable Terminal Block	–	Terminal Block	–	Removable Terminal Block	–	Removable Terminal Block
Maximum Baud Rate	115.2 kbps	115.2 kbps	115.2 kbps	460.8 kbps	460.8 kbps	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps	115.2 kbps
Mounting	DIN Rail	DIN Rail or Panel	Panel	Panel (DIN Rail option)	Panel (DIN Rail option)	DIN Rail	DIN Rail	DIN Rail or Panel	DIN Rail or Panel	Panel	Panel
IEC 61850	–	–	✔	–	–	–	–	–	–	✔	✔
IEEE 1613	–	–	✔	–	–	–	–	–	–	✔	✔
IEC 60068-2-x	–	–	✔	–	–	–	–	–	–	✔	✔
NEMA TS2	✔	–	✔	–	–	✔	✔	–	✔	✔	✔

LIGHT INDUSTRIAL, COMPACT SERIAL CONVERTERS

| PRODUCT SELECTION GUIDE |

LIGHT INDUSTRIAL | RS-232 TO RS-422 CONVERTERS				LIGHT INDUSTRIAL | RS-232 TO RS-485 CONVERTERS								
												
Model Number	**422PP9TB**	**422PP9R**	**422LP25R**	**485SD9TB**	**485SD9R**	**485SD9RJ**	**4WSD9R**	**4WSD9TB**	**485BAT3**	**485DRJ**	**485LP9TB**	**485LPCOR**
Key Features							*Multi-interface. 422/485 DIP Switch*	*Multi-interface. 422/485 DIP Switch*	*3 Powering Options. Multi-interface. 422/485 DIP Switch*	*Multi-interface*		
RS-232 Connector	DB9 Female	DB9 Female	DB25 Female	DB9 Female	DB9 Female	DB9 Female	DB9 Female	DB9 Female	DB9 Female	DB9 Female	DB9 Female	DB25 Female
RS-422 Connector	Terminal Block	DB9 Female	DB25 Male	–	–	–	–	–	–	–	–	–
RS-485 Connector	–	–	–	Terminal Block	DB9 Female	RJ-11	DB9 Female	Terminal Block	Terminal Block	(2) RJ-11	Terminal Block	DB25 Male
Protocols	RS-422	RS-422	RS-422	2-wire RS-485	2-wire RS-485	2-wire RS-485	4-wire RS-422 or 2-wire RS-485 or 4-wire RS-485	4-wire RS-422 or 2-wire RS-485 or 4-wire RS-485	4-wire RS-422 or 2-wire RS-485 or 4-wire RS-485	2-wire RS-485 or 4-wire RS-485	2-wire RS-485	2-wire RS-485
Port Power	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
External Power Supply Option	✔	–	✔	✔	–	–	✔	✔	✔	–	✔	✔
Batteries (2-AAA)	–	–	–	–	–	–	–	–	✔	–	–	–
Dimensions	8.9x3.3x1.7 cm 3.5x1.3x0.7 in	6.1x3.3x1.7 cm 2.4x1.3x0.66 in	8.8x5.6x1.8 cm 3.3x2.2x0.7 in	8.7x3.2x1.6 cm 3.4x1.3x0.6 in	6.0x3.2x1.6 cm 2.4x1.3x0.6 in	7.3x3.2x1.6 cm 2.9x1.3x0.6 in	7.8x4.3x2.0 cm 3.0x1.6x0.8 in	9.0x4.3x2.3 cm 3.6x1.7x0.9 in	9.0x6.5x2.8 cm 3.6x2.6x1.1 in	7.6x5.6x2.2cm 3.0x 2.2x0.9 in	7.3x3.2x1.6 cm 2.9x1.3x0.6 in	5.6x5.5x1.6 cm 2.2x2.2x0.6 in
CE Certification	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

PRODUCT CASE STUDIES

| CUSTOMER SUCCESS STORIES |

CHALLENGE

A known global manufacturer of industrial and commercial power tools, locks and security products needed to reduce the number of cables used in a consigned inventory product based on a vending machine. They discovered they could use a Cat5 Ethernet cable in place of a DB9 serial cable.

SOLUTION

B+B SmartWorx modified an RS-232/485 converter, changing the DB9 connector to RJ45. This allowed them to leverage their purchasing and lower the cabling cost.

CHALLENGE

An electricity company's grid used a variety of SCADA systems at numerous substations which caused communication errors.

SOLUTION

A B+B SmartWorx RS232 to RS422/485 converter with switchable biasing and termination resistors, helped determine that errant relay slave nodes were inconsistent in replying to polls. Random delays caused bus contention.

CHALLENGE

A global supplier of appliances, energy, health and transportation products, including railroad equipment, needed an RS-232 to current loop converter in a DIN rail mountable package with specific current rating.

SOLUTION

B+B SmartWorx created an RS-232 to current loop converter with modified settings and a special housing.

CHALLENGE

A customer provides devices that control gas burner flames for industrial applications, kilns, refineries, ovens, etc.

SOLUTION

B+B SmartWorx provides a modified USB/serial converter with specific drivers dedicated to their converter. Additional modifications with this 10+ year customer have included: upgrades to USB and software drivers, O/S's and documentation; company name change; redesigned company logo. In June 2014, B+B's engineering team completed a third software upgrade (requiring Microsoft's approval). Takeaway: B+B SmartWorx products will evolve over the lifetime of yours.

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