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# Port Powered TTL / RS-232 Converter

Model 2320TTL

**B+B SMARTWORX**

Powered by

**ADVANTECH**

[www.advantech-bb.com](http://www.advantech-bb.com)



## PRODUCT FEATURES

- 1500 Volts optical isolation
- Converts 2 channels in each direction from TTL to RS-232
- Baud rates up to 38.4 kbps
- Powered from RS-232 data/handshake lines - no power supply required

Model 2320TTL converts RS-232 signals to 0-5 VDC TTL levels. The 2320TTL provides 1500V optical isolation. Two channels are used to convert from RS-232 to TTL signals and two channels are used to convert from TTL signals to RS-232.

These converters support RD, TD, RTS, and CTS. The RS-232 side is a DB25P male connector (DCE). The TTL side is a DB25S female connector. The 2320TTL supports up to 38.4K baud.

It is important that only TTL logic (0 to +5V) is used for the TTL side of the converter. The maximum sinking current for one TTL output is 8 mA. The maximum source current for one TTL is 0.8 mA. Signal levels are inverted by the converter in its standard configuration as shown in Table 1.

**Table 1: Standard Inverted Outputs**

TTL Input	RS-232 Output
high (>2.0V)	-5 V maximum, -9V typical
low (<0.8V)	+5 V minimum, +9V typical

TTL Output	RS-232 Input
high (>2.0V)	-5 V maximum, -9V typical
low (<0.8V)	+5 V minimum, +9V typical

Model 2320TTL has the option for non-inverted outputs - see Table 2, "Operations Requiring Modification" if non-inverted outputs are desired.

## Power

Model 2320TTL requires both port power on the RS-232 side, and an external +12VDC power supply connected either through 2.5mm jack or pins 12(GND) and 25(+12VDC) on the TTL side.

Port power is derived from the outputs of the host RS-232 port. TD, RTS, and DTR lines may be used to port power the RS-232 side. A minimum of two of these lines in either high or low states is required for proper operation. To externally power the RS-232 side, connect the positive lead of the +12VDC power supply to pin 25 and the GND lead to pin 12 of the DB25 female connector.

## ORDERING INFORMATION

MODEL NUMBER	RS-232 CONNECTOR	TTL CONNECTOR	TTL VDC	ISOLATION
2320TTL	DB25 Female	DB25 Male	5V	1500V

## ACCESSORIES

**SMI6-12-V-P230-C1** - Power Supply, 12 VDC 6 Watt, 2.5 mm plug, International AC input, International AC blades

**232CAMS** - DB25 male to DB9 female adapter cable, 15.24 cm (6.0 in.)

**232SGF** - 25-pin gender reverser - changes male port to female

## Operations Requiring Modification

Model 2320TTL may be modified to non-inverted signals as shown in Table 2 by placing a jumper wire across JP1:A labeled "NI".

**Table 2: Modified to Non-Inverted Outputs**

TTL Input	RS-232 Output
high (>2.0V)	+5 V minimum, +9V typical
low (<0.8V)	+5 V maximum, -9V typical

TTL Output	RS-232 Input
high (>2.0V)	+5 V minimum, +9V typical
low (<0.8V)	-5 V maximum, -9V typical

Model 2320TTL may also be modified to accept a +5V supply on the TTL side. Remove the 0 Ohm surface mount resistor labeled R13 and place a jumper wire across JP1:B labeled +5V. A +4.75 to +5.25V at a maximum of 25mA is necessary to power the TTL side of the converter when this modification is made.

All product specifications are subject to change without notice.  
2320TTL\_3317ds



# Port Powered TTL / RS-232 Converter

Model 2320TTL



## SPECIFICATIONS

SERIAL TECHNOLOGY	
Data Rate	38.4 kbps maximum
RS-232	
Connector	DB25 female (DCE)
Signals	TD, RD, RTS, CTS, GND
TTL	
Connector	2320TTL: DB25 male
Signals	2 Input/2 Output Channels, GND
Logic	CMOS
VDC Level	5V
ISOLATION	
Isolation	2,000 V optical
POWER	
Source	RS-232: port-powered from RS-232 handshake lines TTL: requires +12 VDC external power supply
Input Voltage	12 VDC (<100 mA)
MECHANICAL	
Dimensions	7.8 x 5.4 x 2.1 cm (3.1 x 2.1 x 0.8 in)
Enclosure	Plastic, ABS, Inline
Weight	0.011 lbs (49.9 g)

MEANTIME BEFORE FAILURE (MTBF)	
MTBF	2107197 hours
MTBF Calc. Method	Parts Count Reliability Prediction
ENVIRONMENTAL	
Operating Temperature	0 to +70 °C (+32 to +158 °F)
Storage Temperature	-40 to +85 °C (-40 to +185 °F)
Operating Humidity	0 to 95% Non-Condensing
APPROVALS / CERTIFICATIONS - 232TTL	
FCC Part 15, CISPR, EN 55022 + AC Class A Emissions	
CE	
EN 61000-6-1 Generic Standards for Residential, Commercial and Light-Industrial Environments	
EN 61000-4-2 Electro-Static Discharge (ESD)	
EN 61000-4-3 +A1 +A2 +IS1 Radiated Field Immunity (RFI)	
EN 61000-4-4 Electrical Fast Transients-Burst Immunity (EFT)	
EN 61000-4-6 Conducted Immunity	

## MECHANICAL DIAGRAM

