

Model: 183V2C

Marine Navigation to PC Converter CE

NMEA0183 Version 2.x to RS-232 Converter

Overview

A GPS, radar, or other marine navigation equipment signal can be directed to a PC serial port using the B&B model 183V2C converter. The unit converts one data signal in each direction between NMEA0183 and RS-232 for going to a PC or other serial device. No power supply is necessary, as the unit derives its power from the RS-232 handshake and data lines. For low powered ports, or if the device will talk to multiple listeners, an optional external 12 VDC supply can be used. The RS-232 connections are made on a female DB-9 connector, providing a straight-through connection to a PC. NMEA0183 signals and optional power connections are on a screw-down terminal block for simple custom wiring. The converter can sit in-line near the PC, or it can be mounted to a panel.

About NMEA

NMEA0183 is a standard that describes both the electrical characteristics and the software protocol that should be used for interfacing electronic marine navigational devices. The standard has evolved over the years through several different versions, but the electrical specifications take only two forms. The older, used in version 1.x is an unbalanced signal, similar to RS-232, but with higher current handling capabilities and optical isolation on the receive line. The newer standard, version 2.0 and above, uses an RS-422 transmitter combined with an optically isolated receiver. The specification allows for multiple listeners on one talker, but does not provide a way for the devices to all talk back. The 183V2C complies to the newer hardware specification, but will also work with older equipment.

Some highlights of the hardware part of the specification are:

Talker drive circuits meet the requirements of EIA-422A

Each signal takes a pair of pins or wires called "A" & "B"

The idle, marking, logical "1," OFF or stop bit state is defined by a negative voltage on line "A" with respect to line "B"

The active, spacing, logical "0," ON or start bit state is defined by a positive voltage on line "A" with respect to line "B"

The listener receive circuit consists of an optoisolator.

The receive circuit must work with a minimum differential voltage of 2.0 volts and draw no more than 2.0 mA from the line at that voltage.

The receive circuit should be over current protected and over voltage protected up to +/- 15V.

Connections

The RS-232 connector of the converter is a DB-9 female. A straight through 9 pin cable can be used to connect to a PC or other DTE device. For a 25 pin DTE device, a standard 9 to 25 adapter can be used. To connect to a DCE device such as a modem, use a "null modem" cable or adapter that crosses pins 2 & 3. Note that the 183V2C can derive its power from both the data and handshake lines present on standard RS-232 ports so, even if handshaking is not used, all pins should be passed through to the converter. See Figure 1 for connection diagrams to different types of devices.

All connections to the NMEA equipment are made on screw-down terminal blocks. Data out "A" and "B" from your device should be connected to RX(A) and RX(B) on the 183V2C. Receive data "A" and "B" from the NMEA device should be connected to TX(A) and TX(B) on the converter. If your device's connections are marked as "data" and "return," the "data" line would go to the "A" line of the converter and the "return" would correspond to the "B" connection on the converter. See Figure 2 for connection diagrams.

The 183V2C should require no external supply in most systems. Low power RS-232 ports or ports without handshake outputs available may require an external supply. You may also need to supply external power if you are connecting more than one listener to the converter's transmitter. When powered externally, the 183V2C requires 10 – 16 VDC @ 50mA.

Specifications

Standards supported:	NMEA0183 Version 2.x to EIA RS-232
Signals supported:	TX & RX converted; Loop-back RTS to CTS, DTR to DSR & DCD
Connectors:	Terminal blocks for NMEA; DB-9 female for EIA RS-232
Power requirement:	Port powered. Optional 10 to 16 VDC @ 50 mA on terminal blocks
Size:	3.9L x 2.1W x 0.9H in

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Figure 1: RS-232 Connection Diagrams

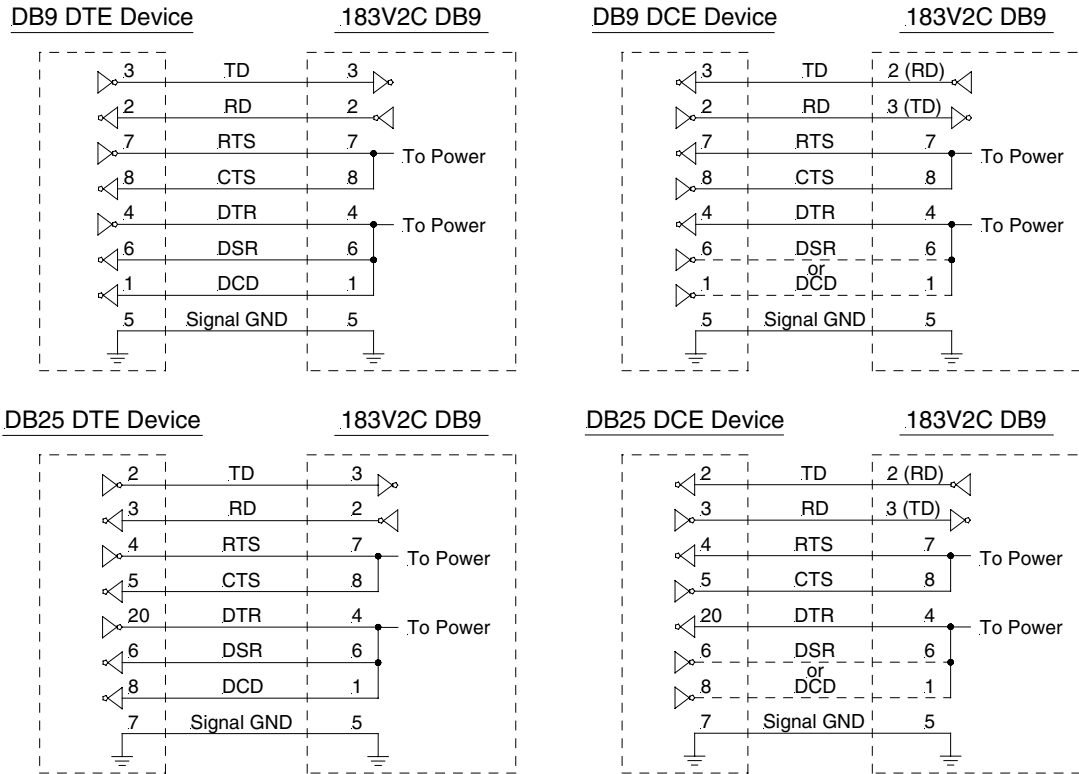


Figure 2: NMEA Connection Diagram

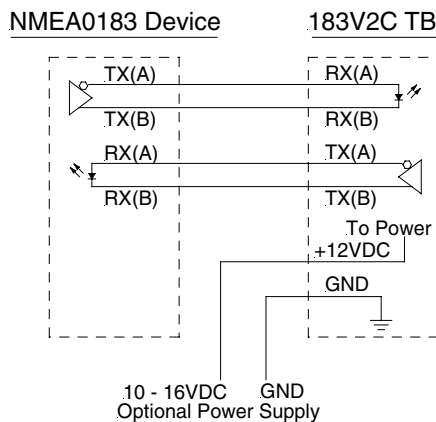
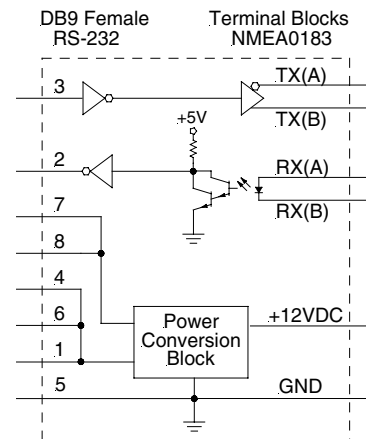


Figure 3: 183V2C Block Diagram



DECLARATION OF CONFORMITY

Manufacturer's Name: B&B Electronics Manufacturing Company
 Manufacturer's Address: P.O. Box 1040
 707 Dayton Road
 Ottawa, IL 61350 USA
 Model Number: 183V2C
 Description: NMEA0183 V2.x to RS-232 Converter
 Type: Light industrial ITE equipment
 Application of Council Directive: 89/336/EEC
 Standards: EN 50082-1
 EN 61000 (-4-2, -4-3, -4-4, -4-6)

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