



Model: 232PTC9
RS-232 Two-Port Combiner



Introduction

B&B Electronics' Model 232PTC9 permits two or more serial devices to share a serial port on a host computer. When one of the devices on either of the slave ports transmits data, it captures the data path to the master port and locks out the other slave port. When data transmission is finished, either slave port gets access to the master port by being the first to start sending data. The RTS line can also be used to control data flow to the master port.

The 232PTC9 can be cascaded to combine as many devices as needed into one host port. A typical application would be to share one host port with several terminals, scanners, scales, or other devices that only need access to the host port occasionally as shown in Figure 1.

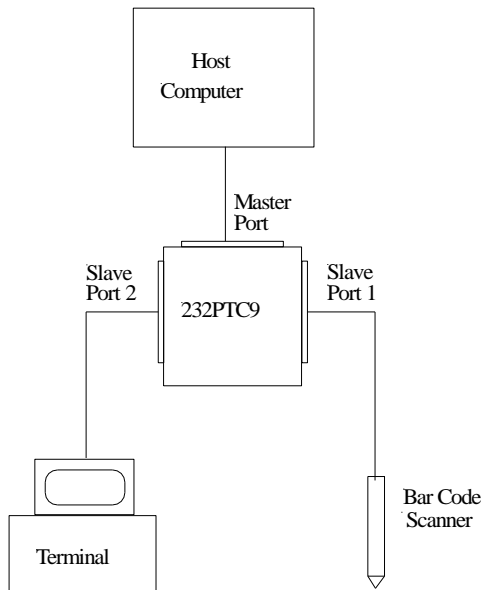


Figure 1. Application Example

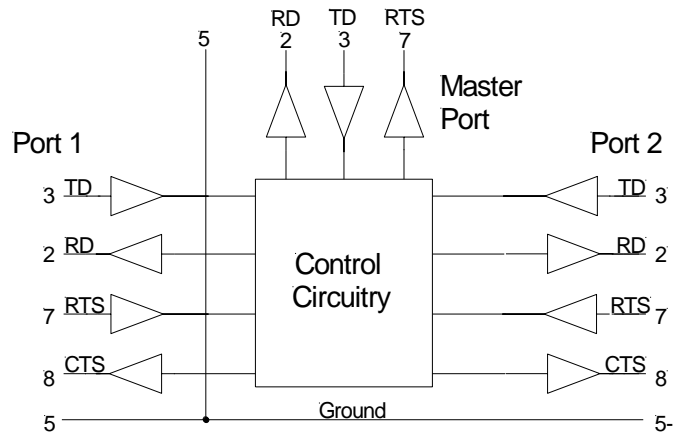


Figure 2. 232PTC9 Port Diagram

Operation

Data flow from master port to slave ports

All data that is sent to the TX line, pin 3 on the master port, is broadcast to both slave ports under all conditions. This data appears on pin 2 of each slave port.

Data flow from slave ports to master port

Data that is sent to the TX line (pin 3) on the slave ports must compete for the path to the master port. There are two methods of capturing the path to the master port, RTS and automatic data sensing. The first slave port to either raise its RTS line or transmit data captures the path to the master port. The path will be locked on that slave port until it either lowers its RTS line, or 60 milliseconds after the end of its transmission. Note that the 232PTC does not buffer any data, any data sent to the opposite slave port during this period will be lost.



Handshake signals

The CTS signal on each slave port indicates to the slave devices if the path to the master port is available. If the slave port's CTS line is high, data received by that port will be transmitted out the master port. If CTS is low, the opposite slave port has captured the path to the master and any data at the inactive slave port will be lost. For example, if both slave ports are inactive and have RTS low, CTS will be high at both slave ports, indicating that the path is available. As soon as one slave port captures the path by either beginning its transmission or raising its RTS line, the CTS signal at the opposite slave port will drop to the low state. The RTS output on the pin 7 of the master port follows the RTS signal level found on the active slave port.

Pinouts

All ports on the 232PTC are configured as RS-232 DCE ports, using DB9 female connectors. Note that a null-modem type connection will be required to connect the 232PTC9 to other DCE configured ports. Tables 1 and 2 and Figure 2 show the configuration of each port.

**Table 1.
Master Port Pinouts**

Signal	Pin	Direction
TD	3	Input
RD	2	Output
RTS	7	Output
GND	5	-----

**Table 2.
Slave Port Pinouts**

Signal	Pin	Direction
TD	3	Input
RD	2	Output
RTS	7	Input
CTS	8	Output
GND	5	-----

Cascading Port Combiners


Port combiners can be cascaded by connecting the master port of each successive unit to one of the slave ports of the preceding unit. Each additional port combiner adds one slave port to the system.

Specifications

- Dimensions: 4.01 x 2.00 x 0.9 in (10.19 x 5.08 x 2.29 cm)
- Connectors: (3) DB-9 female, RS-232 DCE configuration
- Power Supply (required): 12-17VDC (B&B model # 232PS recommended; sold separately)
- Current Draw: 95 mA
- Operating Temp: 0-50 °C (32-122 °F)
- Signals: TD, RD, RTS (slave to master only)
 CTS indicates open channel (slave only)

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 Numbers: 232PTC9
 Description: RS-232 Two-Port Combiner
 Type: Light industrial ITE equipment
 Application of Council Directive: 89/336/EEC
 Standards: EN 55022
 EN 61000-6-1
 EN 61000 (-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11)


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