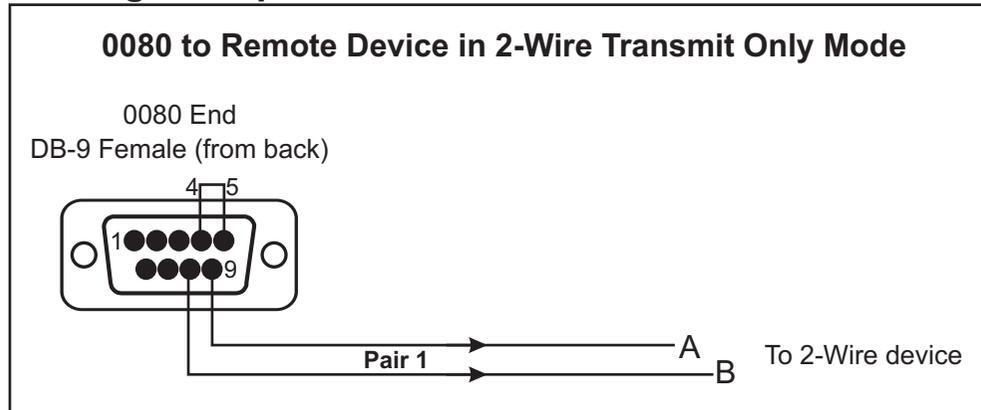


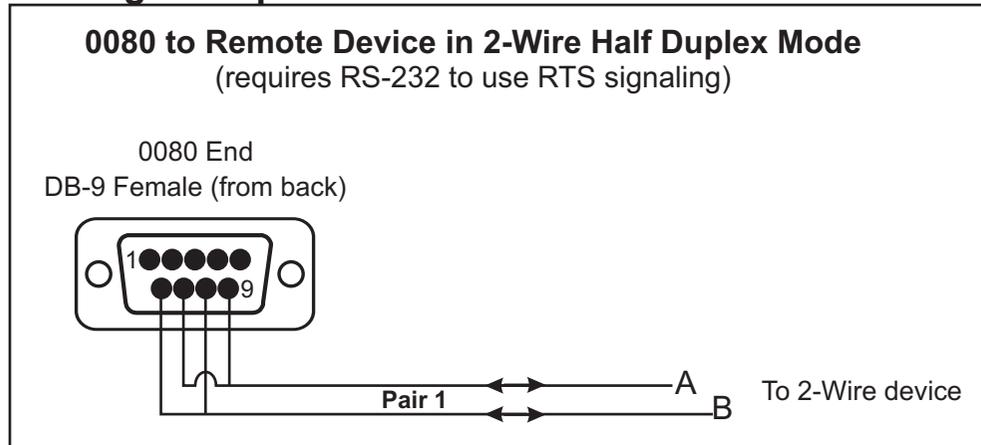
## 2-Wire Mode

The **0080** can also be used in 2-wire mode. In this case both the transmitter and receiver share one cable pair. The transmitting RS-232 unit has to signal the **0080** to turn on its transmitter. This is done by the software of the RS-232 device driving the RTS line active when it is transmitting. Not all Rinstrum indicators will support 2-wire half duplex modes. If the application only requires one-way communications, (eg. from an indicator to a remote display), use the bypass RTS pin to turn the RS-485 transmitter on permanently. The use of 4-wire mode is recommended for two-way communication to avoid possible data collisions.

### Cabling Example 1

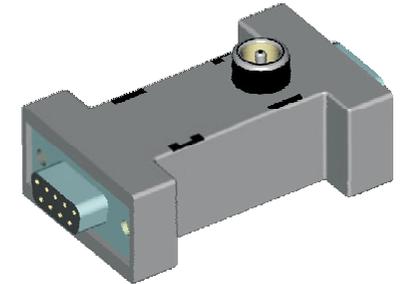


### Cabling Example 2



## 0080 RS-232 to RS-485 Converter

## 0080 RS-232 to RS-485 Converter User Manual



### Introduction

The **0080** is an active device that interfaces between RS-232 and RS-485 serial data networks. Unlike RS-232, the RS-485 uses one cable pair for each signal path. This balanced system has the advantage of being much less affected by electrical noise. RS-232 uses one wire per signal with a common ground return and is specified to around 15 meters. RS-485 is specified for cable lengths of 1200m at 9600 baud. Using slower data rates, greater distances may be achieved.

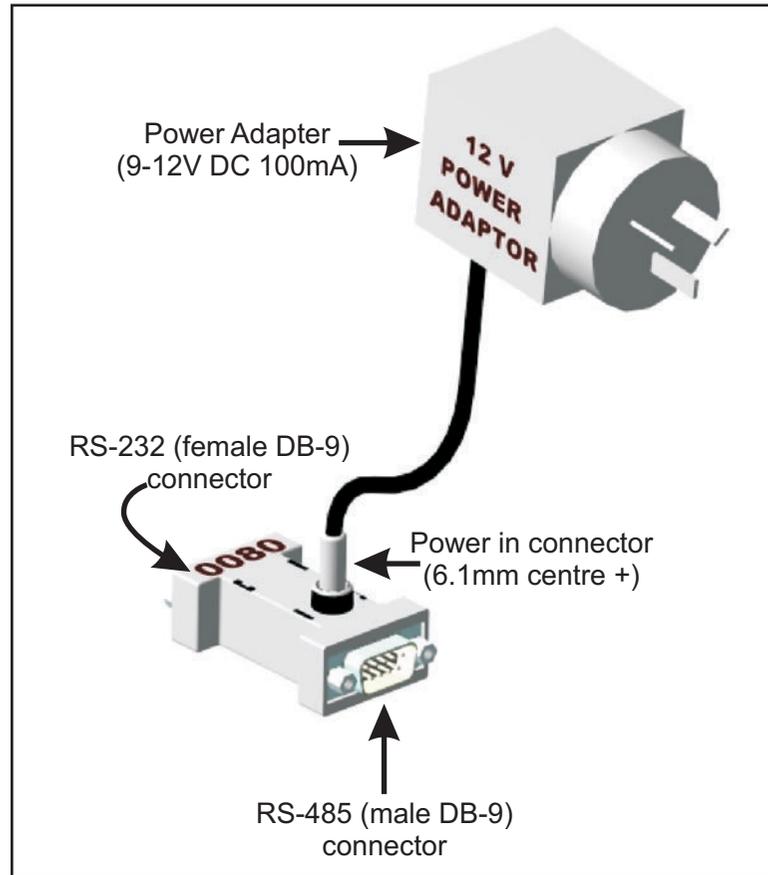
The **0080** can be used in single or multi-drop networks in 2-wire or 4-wire mode. It is advisable to use quality twisted pair shielded cable with the shield connected to the DB-9 shell at both ends.

### Wiring

The device is designed to plug directly into a DB-9 serial port on the back of a PC or Rinstrum indicator. If the PC has a DB-25 connector, a DB-9 male to DB-25 adaptor cable will need to be made. Alternatively use a commonly available DB-25 to DB-9 serial port adaptor. The Pin Outs table on page 2 shows the DB-25 pin numbers to connect to make an adaptor cable.

Pin 1 on the RS-232 port can also be used to supply power. This power is optional and is not needed if the 12VDC adaptor is used. Some Rinstrum indicators supply power on this pin (eg. the 2100), in which case the adaptor is not required. Rinstrum can supply a suitable adaptor if necessary.

## 0080 Ports



## Pin Outs

DB-9 Pin Number	DB-25 Pin Number	RS-232 Port Female DB-9	RS-485 Port Male DB-9
1		12VDC in	No Connect
2	3	PC Receive	No Connect
3	2	PC Transmit	No Connect
4		No Connect	Bypass RTS
5	7	Signal GND	Signal GND
6		No Connect	RB (Receive -)
7	4	PC RTS	RA (Receive +)
8		No Connect	TB (Transmit -)
9		No Connect	TA (Transmit +)

## 4-Wire Mode

The **0080** can be connected in either 4-wire or 2-wire modes. In 4-wire mode a separate cable pair is used for both receive and transmit. In this case the transmitter and receiver are separated and it is not necessary for the RS-232 device to toggle the RTS (request to send) line when it transmits. The **0080** will however still expect the RTS line from the transmitting device to be active. RS-232 active is 12V on pin 7. If the device being transmitted from, does not support this, the "Bypass RTS" pin should be bridged (eg. connect pin 4 of the RS-485 port to pin 5 GND). This effectively turns the RS-485 transmitter on permanently.

The figure below shows the connections when connecting in 4-wire mode to any Rinstrum indicator.

