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Digital Readout (DRO)

RS232 Output to a PC / PLC

Application Note
502387
Issue 3

Introduction

The DR600 / DR700 Digital Readout (DRO) has a RS232 25-way D-type connector (female), which enables a printer to be connected. Using the print options in the menu of the DRO and by pressing the PRINT key, the DRO can send readings to an RS232 printer.

Using this versatile option, the RS232 output on the DRO can also be connected to a PC or PLC RS232 port for communication.

Note: This application note should be read in conjunction with the DR600 / DR700 User Guide and Installation Manual.

Hardware Connection

The DR600 / DR700 Installation Manual describes in detail the wiring connections between the DRO and a PC / PLC with and without flow control connections.

Solartron Metrology can supply an RS232 Interface cable kit (part number 803577). This kit contains all of the necessary cables to connect the DRO unit to a RS232 port and comprises :

- ▶ 2 meter serial cable, 25-way (male) to 25-way (female)
- ▶ 25-way (male) to 9-way (female) adaptor
- ▶ 25-way (male) to 25-way (female) adaptor

DRO RS232 Pinout			
Pin 1	Chassis ground	Pin 5	Clear to send
Pin 2	Transmitted data	Pin 6	Data set ready
Pin 3	Received data	Pin 7	Signal ground
Pin 4	Request to send	Pin 20	Dataterminal ready

RS232 data format and baud rates

The RS232 data format and baud rates are programmed on the DRO unit through the keys on front of the unit.

Options :

- ▶ Baud rate: 300, 600, 1200, 2400, 4800, 9600, 193200, 28800, 57600
- ▶ 1 start bit
- ▶ 7 data bits
- ▶ none / odd / even parity
- ▶ 1 or 2 stop bits

Refer to the DRO User Guide for how to set the baud rates, data format and RS232 output.

Data Format



Message terminated by <carriage return> <line feed>

Text: ASCII text dependent on mode of operation

Reading: ASCII representation of the reading with leading zero's replaced by spaces

U = Units: " for inches, space for mm

R = Range Lamps: > out of tolerance - High
= in tolerance
< in tolerance - Low

S = Scaling Factor: If scaling applied (not 1.000), S is displayed. Blank if no scaling applied
DR700 only

A PC Program to view the DRO Printer Output

There is a program supplied with Windows (95,98,NT,ME etc) called HyperTerminal (Hypertrm.exe). It displays the output of the printer from the DRO on the screen as it would appear on a printer.

To see if you have it installed click the Start Button and look under

Programs > Accessories > Communications

If you see a folder marked HyperTerminal then you have this software installed. If not, install it from the Windows CD.

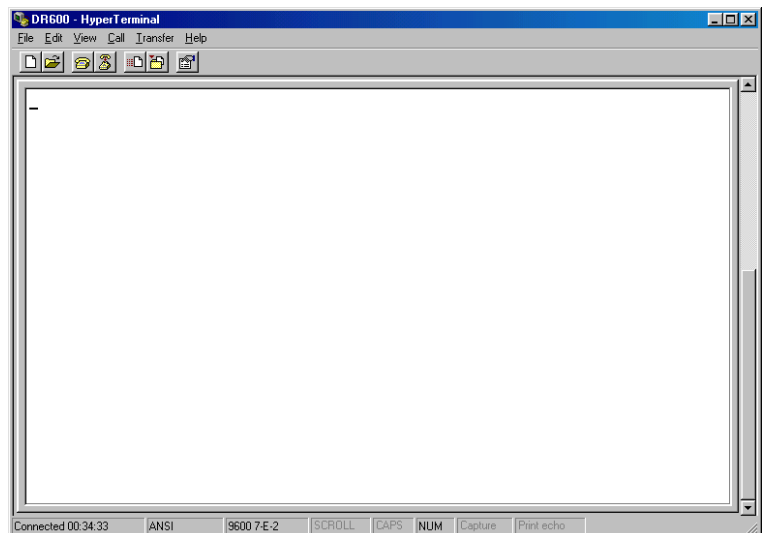
Connect the DRO to Com Port 1 or 2 of the PC using the Serial Download Cable (RS232 Cable Kit - Part number 803577).

Configure the RS232 setting on the DRO unit to the following:

Baud Rate: 9600
Number of stop bits: 2
Parity: even
RTS/CST control?: no
DTS/DSR control?: no

Using HyperTerminal

- 1) Load the HyperTerminal programme and create a **New Connection**.
- 2) Type a name that describes the connection, then select an appropriate *icon* and click **OK**.
- 3) For this application, no information for the call is required. Click **Cancel**.
- 4) Click the **Properties** icon.



5) Click the **Connect To** tab and select the COM port that the DRO is connected to by using the drop down arrow.

6) Click **Configure** and select the **Port Settings** tab to make the changes to the COM port settings.

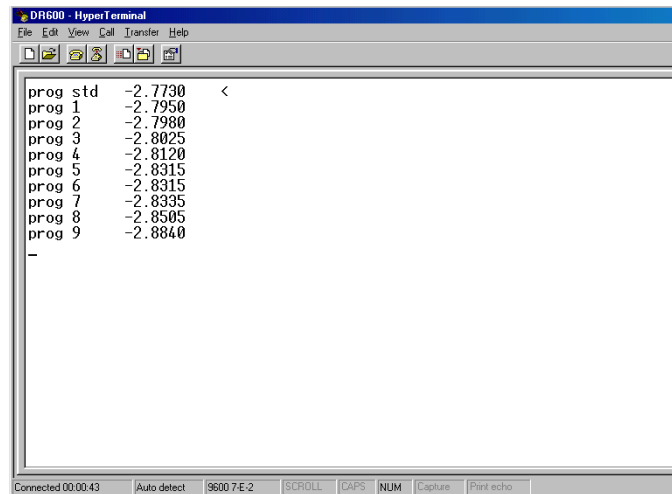
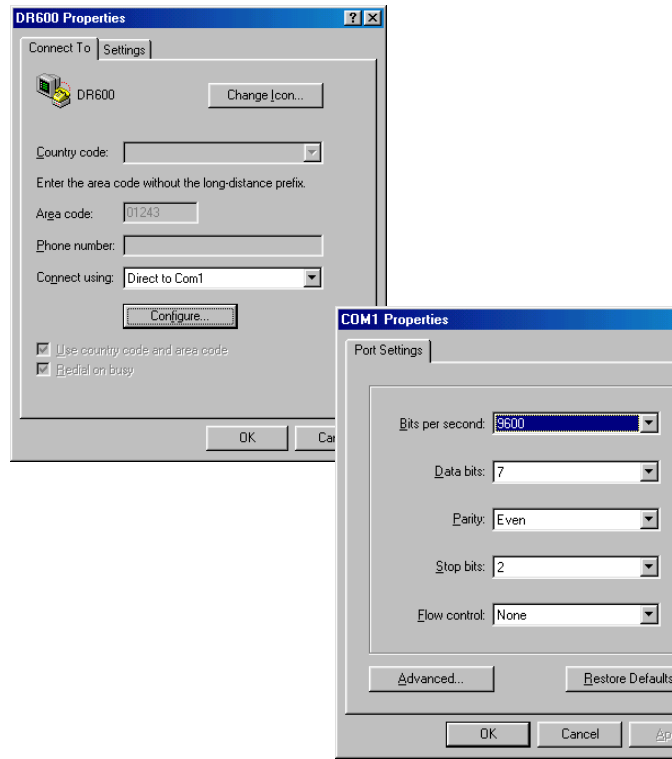
7) Click **OK**, then **OK** again to return to the main terminal display window.

8) Click the **Call** icon to connect the HyperTerminal programme to the DRO unit.

9) Pressing the **PRINT** key on the DRO unit will send a printout from the DRO to the display window of HyperTerminal.

or

Pressing **CTRL B** on the computer keyboard will send a control character to the DRO requesting a print. (This function duplicates the pressing of the **PRINT** key)



The print out options are listed in the DRO User man

Writing an application programme

When writing an application programme, a control character can be sent via the RS232 port to request the reading from the DRO unit. This reading is sent in the format described earlier.

Command	Character	Description
<send measurement>	STX	Request displayed measurement to be sent
<X OFF>	DC3	Stop transmission of message
<X ON>	DC1	Restart transmission of message