MGM INSTRUMENTS, Inc.

Analytical Instruments for Science, Medicine and Industry

APPLICATIONS NOTE

ISOCOMP I
SERIAL COMMUNICATIONS

ISOCOMP I COMPUTER INTERFACE

The Isocomp I Gamma Counter includes a built-in RS-232 Serial Communications Port, for transferring data to or from an external personal computer. Bi-directional communication is accomplished using an ASCII code serial communications link.

The bi-directional feature allows the Isocomp I to transmit data to the personal computer, or the Isocomp I can be controlled by the computer. The Isocomp I software is designed so that action that can be initiated using the keyboard can also be accessed using the RS-232 port.

A data communications program is required on the personal computer to perform the communications from the computer. MGM Instruments, Inc. does not provide the personal computer communications software, however, a communications program is provided with the operating system on most personal computers. For example, Microsoft Windows includes the HyperTerminal program, which is easily set-up to communicate with the Isocomp I.

Data Output Format

The data output by the Isocomp I over its RS-232 serial port is exactly the same as that sent to its printer. The standard curve plotted for a number of the analysis types, however, is not transmitted by the RS-232 serial port.

RS-232 Connection

A standard Null Modem cable is used to connect the Isocomp I to the personal computer. The cable connects the 25 pin male connector on the Isocomp I rear panel to one of the serial ports on the external personal computer. The connection on the personal computer will determine the type of connector that is needed on the personal computer end of the Null Modem cable.

A schematic diagram at the end of this document details the actual connections required in the Null Modem cable.

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Communications Parameters

Data communications parameters used for communication with the Isocomp I are:

- Data rate: 9600 baud (bits per second)
- Data bits: 8
- Stop bits: 1
- Parity: None
- Flow Control: XON/XOFF

To set up the communications parameters in the Windows HyperTerminal program:

1. Click on "File", then "Properties"

2. This accesses the Properties dialog box.

3. Make sure that the appropriate serial port (usually Com 1 or Com 2) is selected in the "Connect Using" drop down box.

4. Click on "Configure"

5. Enter the parameters detailed above.

Using the Windows HyperTerminal Program

HyperTerminal is an application included with Windows 95, and later versions of Windows, that is easy to learn and can be used to capture data from the Isocomp I and control the Isocomp I.

This section provides instructions on setting up the HyperTerminal program to communicate with the Isocomp I, and then to capture data from a protocol run on the Isocomp I.

Procedure:

1. Determine the computer's serial port to be used, and install a Null Modem cable, connecting the RS-232 Serial Port on the rear panel of the Isocomp I to the Com port (usually Com 1 or Com 2) on the Personal Computer.

2. Click on the Windows "Start" button, and then click on "Programs".

3. From the list of programs installed on your computer, click on "Accessories", then click on "Communications".

4. In the list of Accessory programs, click on "HyperTerminal". This should open the HyperTerminal folder on your desktop.

5. Double click on the HyperTerminal icon, to start the HyperTerminal program. The program will display a "New Connection" dialog box, prompting you to enter a name and choose an icon for the connection. Enter "Isocomp" for the name, and choose an icon, then click on "OK".

6. HyperTerminal will then display the "Connect To" dialog box. In the "Connect Using" Drop Down Box, select the appropriate Com port (usually "Direct to Com 1", or "Direct to Com 2"), depending on which port is free on your computer. If your connection does not work, it is possible that some internal device, such as a modem, is using the Com port you selected. Usually, if you select a port that is already in use, the computer will warn you. After selecting the appropriate Com port click on "OK".

7. HyperTerminal will display the "Com Properties" dialog box. Set the Port Settings to the settings detailed in **Communications Parameters**, above, then click on "OK"

8. The "Com Properties" dialog box will close. Click on "File", then "Save". This will save the settings entered under the "Isocomp" file name entered for the connection under step 5, above. In the future, when starting up HyperTerminal to communicate with the Isocomp, an icon named "Isocomp" will be present in the HyperTerminal folder. Double click on this to start HyperTerminal; HyperTerminal will start completely configured for communication with the Isocomp.

Capturing Data From the Isocomp

1. To capture data from the Isocomp I, start HyperTerminal, as described above, but double click on the "Isocomp" icon, as described in step 8, above. HyperTerminal will start up, configured for communication with the Isocomp I.

2. Click on "Transfer" in the HyperTerminal menu, then click on "Capture Text…"

3. HyperTerminal will display the "Capture Text" dialog box. Enter the file name you wish to save the Isocomp I data under, also choosing the path (folder) desired.

4. Start the protocol on the Isocomp I. The data printed by the Isocomp I printer should also appear in the HyperTerminal screen.

5. When the protocol is finished, click on "Transfer" in the HyperTerminal menu, click on "Capture Text", then click on "Stop".

   The captured data is saved by HyperTerminal as a text file, using the file name entered in step 3, above. The file extension will be .txt, and the file will be saved in the folder selected in step 3.
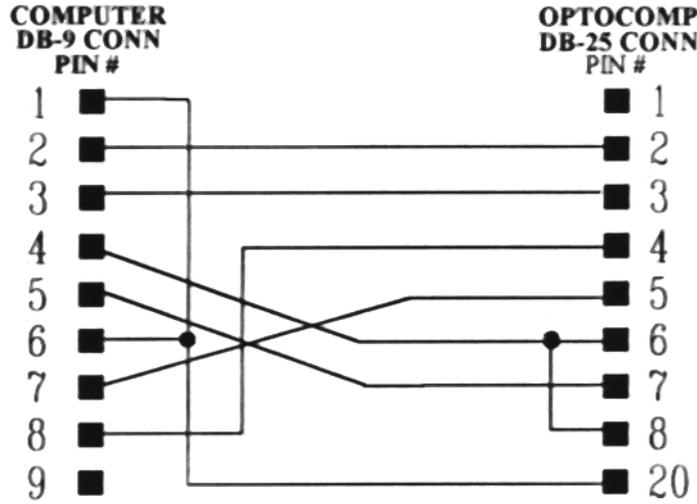
Controlling the Isocomp from a Personal Computer

The Isocomp I can be controlled by a personal computer connected to its rear panel serial port. Certain text characters sent from the personal computer to the Isocomp I are processed by the Isocomp as though one of its front panel keys were pressed:

Character	Front panel key
S	Same as pressing the START key.
E	Same as pressing the PROGRAM key.
L	Same as pressing the LIST key.
Q	Same as pressing CALIBRATE key.
Space	Same as pressing COUNT key.
ESC	Same as pressing the STAT key.
T	Same as pressing the RESUME key.
C	Same as pressing the CLEAR key.
carriage return	Same as pressing the ENTER key.
M	Same as pressing the ENTER key.
•	Same as pressing the • key.
0 – 9	Same as pressing the corresponding number key.

Null Modem Cable Connections

9 PIN TO 25 PIN NULL MODEM CABLE

COMPUTER DB-9 CONN PIN #

OPTOCOMP DB-25 CONN PIN #

1   1
2   2
3   3
4   4
5   5
6   6
7   7
8   8
9   20

25 PIN TO 25 PIN NULL MODEM CABLE

COMPUTER DB-25 CONN. PIN #

OPTOCOMP DB-25 CONN. PIN #

1   1
2   2
3   3
4   4
5   5
6   6
7   7
8   8
20   20