Result Recording Tool for BM/Hitachi 912,902,917,911,747,717 and 704

Operator Manual

Version 2.4

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Contents:

Filename: RES_INFO.DOC

1. Purpose of the program

This program was designed to read results of the BM/Hitachi 912, 902, 917, 911, 747, 717 and 704 analyzers into a host computer via a serial interface and to store this data in a DOS text file for further processing.
For the connection of the computer on which this program shall run there are basically two possibilities:

- as **'Host-System'** with direct connection via the serial line.

- as **'Line Listener'** which is connected to the 'T-connector' (which is also used with the MONITOR program) where the T-connector is inserted into an existing Anylyzer <-> Host connection.

2. Installation

Insert the installation disk in your computer and start the program on the DOS level using the "INSTALL" routine:

e.g. A: INSTALL <Enter>

You have to enter the path on your hard disk onto which the program shall be copied.
After confirming the **[Start Installation]** button, the software packet is decompressed and copied onto the hard disk.
Start the Result Recording program by entering the starting prompt:

DATA_HIT.EXE <Enter>

3. Using the system desktop

After starting the program, the buttons **[Settings]** and **[Display]** as well as a **[?]** will be displayed on top of the screen.
These are the main menu items of the program.
Below those buttons there are the function buttons of the just selected main menu button.
The current settings and statistical data are displayed beneath this menu system.
During an on-going result transmission, result values will be displayed in the text windows.
Buttons to start/end the recording of the results and to end the program are positioned at the bottom of the screen.
The program can be controlled with a mouse or the keyboard.
Mouse operation is easier since menu and selection items or command buttons can be clicked directly whereas keyboard operation first requires activating the items and then confirmation with the **<Enter>** key.

4. Computer Connection

4.1. Computer Connection as 'Host System'

The results are transferred to the host computer via the serial interface of the analyzer. This requires the host computer to be connected to the analyzer by means of a suitable cable.
The following are the pin assignments of these cables for the supported instruments with the assignment of the 9- and the 25-pin port for the computer.

```
BM/HITACHI 912          Host-Computer
RJ45-Connector       9/25-pin female
-----------------------------------
Rxd Pin  5 ---------- Txd Pin 3/2
Txd Pin  4 ---------- Rxd Pin 2/3
GND Pin  3 ---------- GND Pin 5/7
    Pin  1 -+      +- RTS Pin 7/4
    Pin  8 -+      +- CTS Pin 8/5
    Pin  2 ---------- DTR Pin 4/20
    Pin  6 ---------- DCD Pin 1/8
    Pin  7 ---------- DSR Pin 6/6
-----------------------------------
```

Connect the cable to the first RJ45 connector on the left of the interface card in the HP Vectra control unit.

```
BM/HITACHI 902          Host-Computer
15-pin male          9/25-pin female
-----------------------------------
Rxd Pin  3 ---------- Txd Pin 3/2
Txd Pin  2 ---------- Rxd Pin 2/3
GND Pin  1 ---------- GND Pin 5/7
RTS Pin  4 -+      +- RTS Pin 7/4
CTS Pin  5 -+      +- CTS Pin 8/5
                   +- DTR Pin 4/20
                   +- DCD Pin 1/8
                   +- DSR Pin 6/6
-----------------------------------
```

Connect the cable to the 'J402' connector on the backside of the analyzer.

```
BM/HITACHI 917          Host-Computer
9-pin female            9/25-pin female
-----------------------------------
Rxd Pin  2 ---------- Txd Pin 3/2
Txd Pin  3 ---------- Rxd Pin 2/3
GND Pin  5 ---------- GND Pin 5/7
RTS Pin  7 -+      +- RTS Pin 7/4
CTS Pin  8 -+      +- CTS Pin 8/5
DSR Pin  6 ---------- DTR Pin 4/20
DCD Pin  1 -+      +- DCD Pin 1/8
DTR Pin  4 ---------- DSR Pin 6/6
-----------------------------------
```

Connect the cable to the 'Serial A' connector on the backside of the HP Vectra control unit.

```
BM/HITACHI 911          Host-Computer
DB 25 male              DB 9/25 female
-----------------------------------
Rxd Pin  3 ---------- Txd Pin 3/2
Txd Pin  2 ---------- Rxd Pin 2/3
GND Pin  7 ---------- GND Pin 5/7
RTS Pin  4 -+      +- RTS Pin 7/4
CTS Pin  5 -+      +- CTS Pin 8/5
DSR Pin  6 -+      +- DSR Pin 6/6
DTR Pin 20 -¦      +- DTR Pin 4/20
DCD Pin  8 -+
-----------------------------------
```

Connect the cable to the "H.CPU" part on the backside of the analyzer.

```
BM/HITACHI 747          Host-Computer
DB 9 female             DB 9/25 female
-----------------------------------
Rxd Pin  2 ---------- Txd Pin 3/2
Txd Pin  3 ---------- Rxd Pin 2/3
GND Pin  5 ---------- GND Pin 5/7
RTS Pin  7 -+      +- RTS Pin 7/4
CTS Pin  8 -+      +- CTS Pin 8/5
DSR Pin  6 ---------- DTR Pin 4/20
DCD Pin  1 -+      +- DCD Pin 1/8
DTR Pin  4 ---------- DSR Pin 6/6
-----------------------------------
```

Connect the cable to the serial port on the backside of the HP Vectra control unit.

```
BM/HITACHI 717          Host-Computer
DB 25 male              DB 9/25 female
-----------------------------------
Rxd Pin  3 ---------- Txd Pin 3/2
Txd Pin  2 ---------- Rxd Pin 2/3
GND Pin  7 ---------- GND Pin 5/7
                   +- RTS Pin 7/4
CTS Pin  5 -+      +- CTS Pin 8/5
DTR Pin 20 -+      +- DSR Pin 6/6
                   +- DTR Pin 4/20
-----------------------------------
```

Connect the cable to the "J404" port on the backside of the analyzer.

```
BM/HITACHI 704          Host-Computer
25-pin male             9/25-pin
-----------------------------------
Rxd Pin  3 ---------- Txd Pin 3/2
Txd Pin  2 ---------- Rxd Pin 2/3
GND Pin  7 ---------- GND Pin 5/7
                   +- RTS Pin 7/4
CTS Pin  5 -+      +- CTS Pin 8/5
DTR Pin 20 -+      +- DSR Pin 6/6
                   +- DTR Pin 4/20
-----------------------------------
```

Connect the cable to the 'J404' port on the backside of the analyzer.

4.2. Computer Connection as 'Line Listener'

At the appropriate position (Host- or Analyzer side) you first have to insert the so called 'T-Connector' into the existing host connection.
The computer has to be connected to the third plug of this connector by the following cable:

```
Serial T-Connector      Listen-Computer
9-pin male              9/25-pin
-----------------------------------
Txd Pin  2 ---------- Rxd Pin 2/3
GND Pin  5 ---------- GND Pin 5/7
DCD Pin  1 ---------- DCD Pin 1/8
DTR Pin  4 ---------- DTR Pin 4/20
```

5. Menu system

5.1. Main menu item Settings

5.1.1. Menu item "Settings/Analyzer"

Use the menu item ***Settings/Analyzer*** to select the type of instrument you wish to use. If you are working with a BM/Hitachi 912, 902 or 911, you also have to enter the 'End-of-data Code'.
This identification must correspond with the 'End-of-data code' in the analyzer software.
To activate result transmission to the host computer, first activate the host communication before you start your RUN. This is done on the following screens:

- BM/HITACHI 912
  Start Condition => Host Communication [On Line]
- BM/HITACHI 902
  Start Condition => Host Com.
- BM/HITACHI 917
  START => Print Host => Host Comm [Enable]
- BM/HITACHI 911
  START CONDITIONS => HOST COMMUNICATION [ON]
- BM/HITACHI 747
  5.7 SYSTEM PARAMETER => Host COMMUNICATION [YES]
- BM/HITACHI 717
  START CONDITIONS => COMMUNICATION [YES]
- BM/HITACHI 704
  DIP switch 18 auf TRIPADC Platine [ON]

The 912, 902, 917, 911 and 747 analyzers feature an optional 'RESULT ONLY' mode (to be set in the System Parameter/Host Settings menu). In this mode, results are transferred to the host computer without requiring a confirmation.

Below the Instrument selection box, the system features a "Communication Trace" option.
In the default setting, this option is disabled. If it is necessary to record data transmission between analyzer and host computer, this option can be activated before starting a RUN.
The entire data transmission is recorded in the "TRACE.TXT" file and can be printed out or displayed with the menu option ***Display/Trace***.
The received message starts with the identification 'AU', the sent message starts with 'Host'. If the program works as 'Line Listener', both messages from Host and analyzer get the identification 'AU', because the program cannot detect who is the sender. The messages with the identification 'Host' are the MOR frames which are sent by the program standardly but they never reach anyone because the pin 3, (transmit data) is not connected in the T-connector.

5.1.2. Menu item "Settings/Interface"

For the analyzer and the computer to communicate, both instruments must be set to the same interface parameters. For the 911 and the 747 analyzers, this is done in the SYSTEM PARAMETER menu, for the 917 in the HOST SETTINGS menu in the software of the analyzer.
The operator has to set the transmission rate (Baud rate), the number of data bits and stop bits and the parity.
In the result recording program, use the menu item ***Settings/Interface*** to set the parameters according to the settings given in the SYSTEM PARAMETER/HOST SETTINGS menu. Also select the interface of your computer (COM1 or COM2, if available) to which the analyzer is connected.
When connecting a BM/HITACHI 717, select the following parameters:

- Baud rate 2400
- 7 data bits
- 2 stop bits
- even parity

These are the default parameters.

The parameters of the HITACHI 704 are selected by DIP switch on the interface board (please refer to the Service Manual)

5.1.3. Menu item "Settings/Text File Options"

Use the menu item ***Settings/Text File Options*** to determine which results and which data you want to store in the text file. Each result is stored in a text file line. Up to 9 individual data segments can be stored for each value.
Use "Column Separator" to separate between these individual data segments.
Use "Data Fields" to select the individual data segments to be stored.
Select in the "Result Types" selection field the type of result which you want to store.
If you want to store names of the data fields in the first text file line, activate the corresponding option.
For the number and date values there are two formats available:

a) German:	Comma as decimal sign,	Date: DD.MM.YY	Time: HH:MM
b) USA:	Point as decimal sign,	Date: MM/DD/YY	Time: HH:MM

These settings are important for a proper interpretation of the data when inporting to the spreadsheet application.
Enter a specific test number, if you only want the result of one test.

Exit this selection window by clicking the **[Save]** button to store your settings until the next session.

5.1.4. Menu item "Settings/Program Configuration"

You can find the ***Program Configuration*** function in the main menu ***Settings***. In this item, you can select the language for the system desktop. All possible texts of the program are stored in a separate text file. You can select between three languages which are available for a corresponding text file (default settings are english and german; other language versions can be created, if necessary. Additional information is given in the Info window).
In a second selection field, you can select between color display or black/white display. When using laptops or note books with LCD display, we recommend to use mono displays as they have the better contrast.

5.2. Menu item "Display"

5.2.1. Menu item "Display/Current Text File"

Use this function to display or print out the transmitted results. However, this is only possible if a file has been opened during the recording of the results.

5.2.2. Menu item "Display/Trace"

Item 5.1.1 describes an option to record the entire data transmission between analyzer and host computer in one file. If this option has been activated at the beginning of your session, you can use this function to display or print out the transmitted data.
This communication trace function can also be used to check the communication (e.g. to search "lost" results).

5.3. Main menu item "?"

5.3.1. Menu item "?/Program Info"

This Info Window contains name and address of the program developer and information on the software version.

5.3.2. Menu item "?/Help function"

The Help function allows you to display this text on the screen. Use the print option to print out this Help text in ASCII format.
If a **[Help]** button is available in various windows of the program, the corresponding chapter will be directly displayed.

6. Steps to Recording Results

6.1. Start Recording

After starting the program as Host-System, the received ANY frames from the analyzers 912, 902, 917, 911 and 747 are acknowledged by the MOR frame to keep the communication running.
Click on **[Start Recording]** to activate the recording of the results at the host computer. An entry mask for the name of the text file will be displayed to store the transmitted results. If you enter a file name of an already existing file, the system will prompt you to either delete (replace) the already existing file or add the new results. The path can be changed by either double-clicking the the new path in the path selection box or by pressing the enter key after selecting the new path.
Once the entry is confirmed, you are in the recording mode. This is indicated by displaying the file name and the recording status in the upper part of the screen next to the instrument identification and the selected interface parameters. Further, the **[Start Recording]** button disappears and the **[Stop Recording]** button appears. Whenever the analyzer receives a message, a window with the corresponding message and the current time is displayed in the top right corner of the screen. This display serves to check whether all data has been transferred correctly.

6.2. Recording Results

As soon as the analyzer receives a result message, the first result of the message is displayed in the display fields.
The following data is displayed:

- Type of sample: Routine/Rerun/STAT/Control
- Sample number
- Ident. number
- Channel number of the first result
- First result
- Number of results in the message

Above this display line, the number of results in the text file and the number of the transmitted increase correspondingly.

According to the functionality of the analyzer, each result text line gets a function character for identification and the sample type (class 1,2 ...) as first and second items:

Sample	Barcode Mode	Function char
Routine	Barcode mode	A
Auto Rerun	Barcode mode	B
Manual Rerun	Barcode mode	C
STAT	Barcode mode	D
STAT Rerun	Barcode mode	E
Control		F
Routine	Seq.no. mode	N
Auto Rerun	Seq.no. mode	O
Manual Rerun	Seq.no. mode	P
STAT	Seq.no. mode	Q
STAT Rerun	Seq.no. mode	R

6.3. End Recording

Click the **[Stop Recording]** button to terminate the recording once all results of your RUN have been transmitted. The text file is then also automatically closed. The results are available in the desired format in the text file and ready for further processing with a spread sheet program. Click the **[Exit Program]** button to exit the result recording program.

7. Technical Specifications

7.1. File List

The program contains the following files:

DATA_HIT.EXE	Main program
DATA_HIT.INI	Configuration data (is created when started for the first time)
DATA_GE.TXT	German desktop text
DATA_EN.TXT	English desktop text
DATA_GEH.TXT	German help text in ASCII format
DATA_ENH.TXT	English help text in ASCII format

7.2. Hardware Requirements

- Installation of the program package on a hard disk of the host computer requires approximately 250 kB storage capacity. In addition, a certain capacity is needed to store the result files.
- The host computer requires a serial interface.
- You can use a mouse to operate the program.

8. Update Information

Version 2.1 - October 1994

NEW: Program can now receive results from BM/HITACHI 704 and 917
NEW: Program can now also work as 'Line Listener' in connection with a T-Connector

Version 2.2 - December 1994

BUG: Elimination of Laserjet-specific printer commands

Version 2.3 - May 1996

BUG: Entering a file name and changing the data path without mouse
BUG: Country specific decimal sign
NEW: Option for filtering specific test numbers

Version 2.4 - December 1996

NEW: Extension for BM/Hitachi 912 and 902.
NEW: Function character and class digit are the first two items in each text line (see chapter 6.2).