Unique Micro Design
Advanced Thinking Products

Model S151
UMD Transfer Utility
for the Nippondenso BHT Series
User Manual

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OVERVIEW

What is UMD Model S151 transfer utility?

The UMD Model S151 transfer utility software is used to transmit and receive data and program files from the entire range of Nippondenso BHT Handy Terminals to a host computer running in the MS-DOS environment. S151 is fully compatible with the Nippondenso transfer utility, and can be used with Nippondenso Easy Pack and UMD S150 BHT Collect files.

This program was specifically written for ease of use incorporating a menu system as well as command line options. S151 can be used with serial ports COM1 , 2 , 3 and COM4 at baud rates up to 19.2K with DTR/CTS hardware and XON/XOFF software handshaking.

This manual assumes a good knowledge of MS-DOS, computer communication and the Nippondenso BHT handy terminals.

Environment Requirements

- PC/AT Series, PS/2 Computers.
- MS DOS 4.01 or later.
- Nippondenso BHT series PDE Handy Terminal.

Special Note

The Nippondenso transfer utility “TU3” automatically creates a FLD file for the data file when it is uploaded from the BHT. This file contains the field structure. The FLD is not created or used by S151, the user must manually add the field structure when using Easy Pack files, see Using Menu Options and Command Line options later in this manual.

Conventions

This manual follows a number of conventions for clarity and to help you find information quickly. Text that you would see on your computer screen is shown here in a "typewriter" typeface. Text that would be entered by you in these examples is shown in **bold**:

```
c:\dos>dir
```

File Information

• Program files for the BHT have the filename extension “PD3”. These files are BHT Basic compiled programs for the PDE

• Easy Pack 4.0 is the application program resident in Read Only Memory in the BHT-2000/BHT-2000DC units. Easy Pack 4.1 is the application program in ROM for the BHT-3000 series and Easy Pack 4.2 is the application program that is downloaded into the BHT4000 series. The data files used by these programs have a filename extension “DAT”.

• File names and options may be specified in any order

• File names are in MS-DOS 8.3 format (8 character file name 3 character extension).

• File names can contain only the letters A through Z, the numbers 0 through 9, and symbols ($,&,#,%,',@,_,^,{,},~ and !) .

• S151 Transfer Utility makes no distinction between upper and lower case letters.

• File names should not start with a hyphen (–) or minus sign (-) to prevent confusion with the options on the command line.

• When specifying a file name, the DOS path can be specified with the filename in the form:

[drivename:] \ directoryname\ filename.ext :

```
c:\>S151 -SPA:\FILES\MYFILE.PD3
```

Default Settings

The following are the default settings taken by S151:

COM 1serial port @ 19.2K baud,No parity,8 data bits,1 stop
Handshaking: Software disabled / Hardware enabled
Mode: (file format) - BHT Protocol
Data filename: - File.txt
Program filename: - BHT_COLL.PD3
Default Data file construction: - 2 fields / 10 characters per field
I/O method - Interrupt
Quiet Mode - Disabled

Product Support

We hope that your use of the UMD BHT Series Transfer Utility will be trouble-free. We understand that problems may arise, and in most cases you will be able to resolve any problems you may have by referring to the documentation. Answers to questions you might have will usually be found within these pages.

If your questions cannot be resolved from the manual a Customer Support person may be reached by phone. Please see the back of this manual for contact numbers.

1 Getting Started

To be able to communicate with the Nippondenso BHT handy terminals, the internal system program needs to be initialised, the interface type selected and the communications parameters set up. Both interface types are shown, optical and direct connect (IFC), your choice will depend on the connection to the host computer that you wish to use.

Then downloading or uploading selection is made from the system menu. The steps to prepare the BHT for transferring data or programs are discussed in the following sections.

There are small differences in the system program menus in each series of BHT and each will be dealt with separately.

There are two ways the transfer utility can be used on the host computer, menu or command line. At the DOS prompt type either:

```
a:\>s151  (↵)
```

For Menu Operation, see section 5.

Or using the command line options:

```
a:\>s151 -rdNEWFILE.UMD -u -hsh  (↵)
```

For Command Line Options, see section 6.

If the BHT is new or going to be used in a new installation it will require initialising.

2 Initialising the BHT.

NOTE This will delete any data or programs in the BHT and should be done only when loading a completely new software system. This applies to all models of BHT.

To initialise the BHT press the four keys below at the same time. (Some models request permission to initialise, press 1 then ENT to continue) The next window will ask for a selection of English or Japanese, select English and then the BHT will turn off.

Trigger 0 SFT PWR

2.1 Activating the System Menu

After the BHT has been initialised the SYSTEM MENU has to be activated to be able to change the communication parameters and send and receive files. Activate the System Menu by pressing the following 3 keys at the same time:

SFT **1** **PWR**

3 Setting Communications Parameters

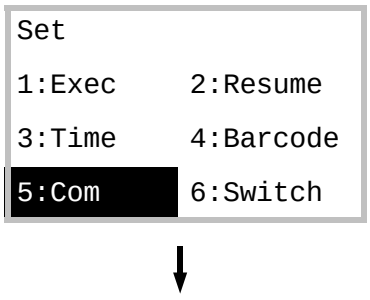
Setting the communication parameters starts at the SYSTEM MENU. The baud rate (speed), data bits, parity and stop bits are set to the required values by selecting the appropriate screens.

There are differences between system menus in the four series of BHT. Each series is discussed separately:

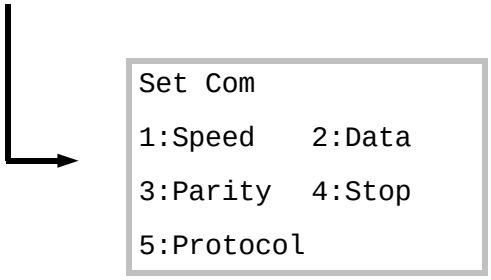
- BHT-2000 series
- BHT-2000BC series
- BHT-3000 series
- BHT-4000 series

3.1 Setting the Communication Parameters for BHT-2000 series

With the SYSTEM MENU on screen select the “Set” screen by pressing the 5 key followed by the ENT key. The various communications parameters can now be setup.



From the “Set” menu press the 5 key followed by the ENT key, to select the “Set Com” screen.



From the “Set Com” screen press the numerical keys followed by the ENT key to shift to the corresponding setting screen.. Setting the various serial parameters involves pressing the numerical keys and the ENT key. To return to the previous screen, press the CLR key.

1 Speed; Selects the speed setting screen where you should select the transmission speed. The S151 default is “19200” bps.

2 Data; Selects the character length setting screen where “8” bits is the S151 default.

3 Parity; Selects the parity setting screen where “none” is the S151 default.

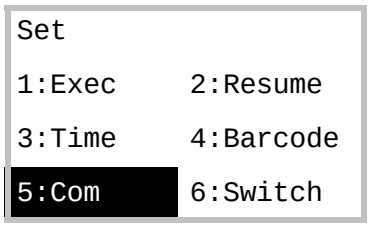
4 Stop; Selects the stop bit setting screen select “1” is the S151 default.

The protocol settings are left as default and do not require changing. Return to the SYSTEM MENU using the CLR key.

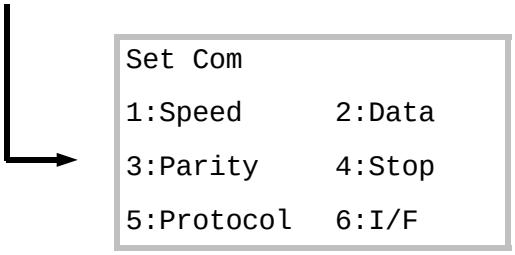
Turn to page 19 for the downloading and uploading menu selection.

3.2 Setting the Communication Parameters for BHT-2000BC (Direct Connect) series

With the SYSTEM MENU on screen select the “Set” screen by pressing the 5 key followed by the ENT key. The various communications parameters can now be setup.



From the “Set” menu press the 5 key followed by the ENT key, to select the “Set Com” screen.



From the “Set Com” screen press the numerical keys followed by the ENT key to shift to the corresponding setting screen.. Setting the various serial parameters involves pressing the numerical keys and the ENT key. To return to the previous screen, press the CLR key.

[1] Speed;	Selects the speed setting screen where you should select the transmission speed. The S151 default is “19200” bps
[2] Data;	Selects the character length setting screen where “8” bits is the S151 default.
[3] Parity;	Selects the parity setting screen where “none” is the S151 default.
[4] Stop;	Selects the stop bit setting screen select “1” is the S151 default.

The protocol settings are left as default and do not require changing

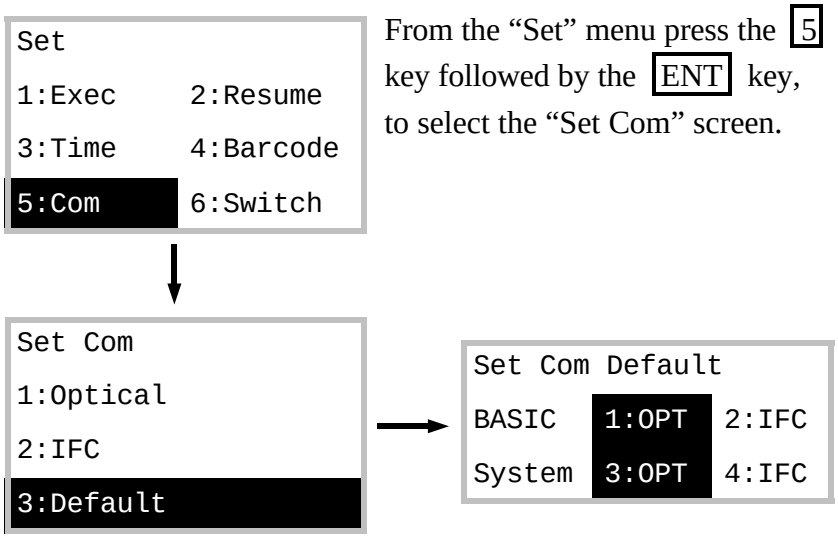
[6] I/F;	Selects the interface setting screen where the optical interface (Optical) or direct-connect interface (IFC) is selected.

Return to the SYSTEM MENU using the [CLR] key.

Turn to page 19 for the downloading and uploading menu selection.

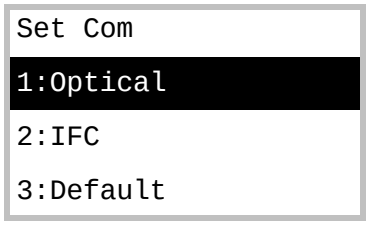
3.3 Setting the Communication Parameters for BHT-3000 series

With the SYSTEM MENU on screen select the “Set” screen by pressing the 4 key followed by the ENT key. The various communications parameters can now be setup.



From the “Set” menu press the 5 key followed by the ENT key, to select the “Set Com” screen.

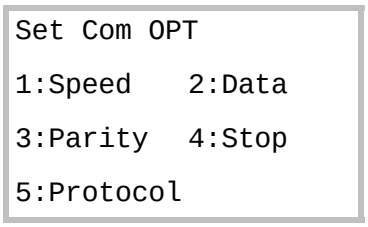
Select the “Set Com Default” screen by pressing the 3 key followed by the ENT key. The “System” selection sets the optical or direct-connect port to be used for downloading and uploading files in system mode. Select the desired port by using the 3 or 4 key followed by the ENT key. The BHT will return to the “Set Com” screen.



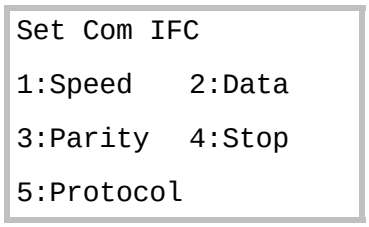
[1] Optical; Selects the communications parameter menu screen for the optical interface.

[2] IFC; Selects the communications parameter menu screen for the direct-connect interface.

Select the desired interface menu screen by pressing the [1] or [2] key followed by the [ENT] key.



Option screen for Optical Interface



Option screen for IFC Interface

From the “Set Com” screen press the numerical keys followed by the [ENT] key to shift to the corresponding setting screen.. Setting the various serial parameters involves pressing the numerical keys and the [ENT] key. To return to the previous screen, press the [CLR] key.

[1] Speed;	Selects the speed setting screen where you should select the transmission speed. The S151 default is “19200” bps
[2] Data;	Selects to the character length setting screen where “8” bits is the default for S151.
[3] Parity;	Selects the parity setting screen where “none” is the S151 default.
[4] Stop;	Selects the stop bit setting screen select “1” the S151 default.

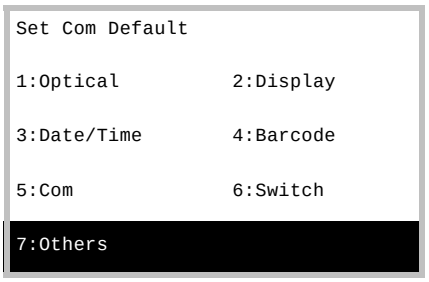
The protocol settings are left as default and do not require changing.

Return to the SYSTEM MENU using the [CLR] key.

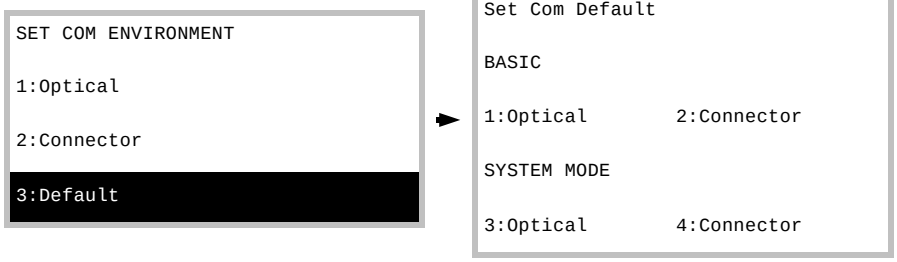
Turn to page 19 for the downloading and uploading menu selection.

3.4 Setting the Communication Parameters for BHT-4000 series

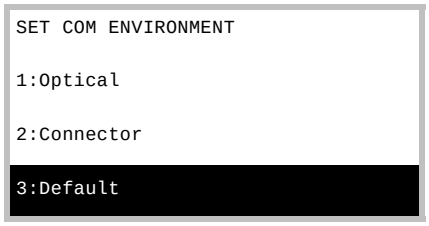
With the SYSTEM MENU on screen select the “Set” screen by pressing the 4 key followed by the ENT key. The various communications parameters can now be setup.



From the “Set” menu press the 5 key followed by the ENT key, to select the “Set Com Environment” screen.



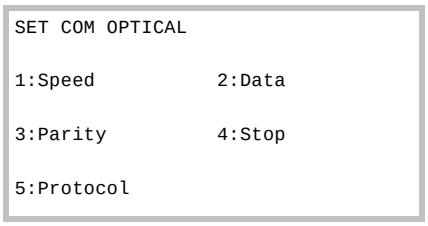
Select the “Set Com Default” screen by pressing the 3 key followed by the ENT key. The “System” selection sets the optical or direct-connect port to be used for downloading and uploading files in system mode. Select the desired port by using the 3 or 4 key followed by the ENT key. The BHT will return to the “Set Com” screen.



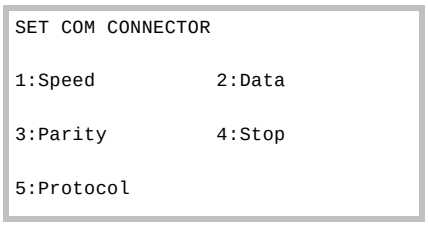
[1] Optical; Selects the communications parameter menu screen for the optical interface.

[2] IFC; Selects the communications parameter menu screen for the direct-connect interface.

Select the desired interface menu screen by pressing the [1] or [2] key followed by the [ENT] key.



Option screen for Optical Interface



Option screen for IFC Interface

From the “Set Com” screen press the numerical keys followed by the [ENT] key to shift to the corresponding setting screen.. Setting the various serial parameters involves pressing the numerical keys and the [ENT] key. To return to the previous screen, press the [CLR] key.

1 Speed;	Selects the speed setting screen where you should select the transmission speed. The S151 default “19200” bps.
2 Data;	Selects the character length setting screen where “8” bits is the S151 default.
3 Parity;	Selects the parity setting screen where “none” is the S151 default.
4 Stop;	Selects the stop bit setting screen select “1” is the S151 default.

The protocol settings are left as default and do not require changing.

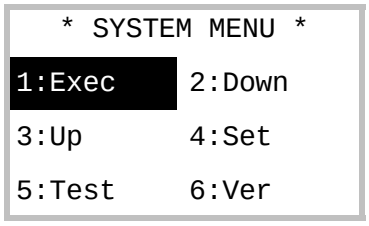
Return to the SYSTEM MENU using the CLR key.

Now go to the downloading and uploading menu selection.

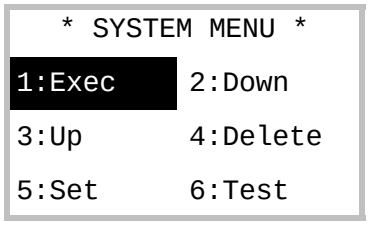
4 Downloading and Uploading from the BHT

The next stage in preparing the BHT, is to have the BHT waiting to receive or transmit files, this is done through the SYSTEM MENU. “Downloading” sends files from the host computer to the BHT. “Uploading” sends files from the BHT to the host computer. Note that SYSTEM MENU for the BHT-3000/BHT-4000 is different from the BHT-2000/BHT-2000BC.

BHT-3000/BHT-4000



BHT-2000/BHT-2000BC



From the SYSTEM MENU select downloading by pressing the 2 key or uploading by pressing the 3 key followed by the ENT key. The DOWNLOAD or UPLOAD menu screen appears.

1 Program File; Downloads a user program file (object file) compiled by the BHT Basic Compiler, to the memory in the BHT

2 Data File; Downloads a data file to be used by a user program, to the RAM

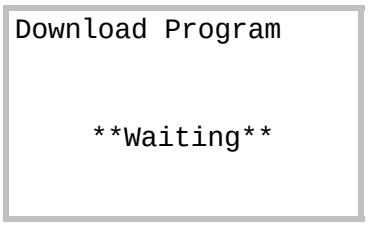
Select program or data file by using the numerical keys then press ENT to make the BHT ready for transferring information.

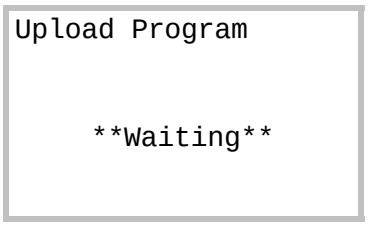
1 Program File; Uploads a user program file (object file) stored in RAM, to the host computer. Select program from list.

2 Data File; Uploads a data file stored in the RAM to the host computer. Select data file from list.

Select program or data file by using the numerical keys then press ENT to make the BHT ready for transferring information. If more than one file has been stored in the RAM, select from the displayed list.

After selecting program or data file, one of the screens shown below appear, indicating that the BHT is waiting for a program file (or a data file) to be downloaded (or uploaded).





5 Using Menu Options in S151

To use the S151 transfer utility to upload or download a file the communication options must be set in the BHT and it should be at the upload or download menu. This section looks at the S151 menu options for transferring files. The MENU SCREEN is opened by typing at the DOS prompt:

a:\>**S151** (↵)

```
          Unique Micro Design BHT Series Transfer Utility .. S151
                                    Version 1.3   19 Jan 1995

       COM Port Settings    : COM1:19200,N,8,1
       Hardware Handshaking : ENABLED
       Software Handshaking : DISABLED
       Io Method            : Interrupt

     BHT Protocol DATA FILE FORMAT         PROGRAM FILE
  FILE: FILE.TXT                        FILE: BHT_COLL.PD3
1. File Format (S150/BHTProtocol)   6. New Program File Name
2. New Data File Name               7. Receive Program from BHT
3. Receive Data from BHT            8. Send Program to BHT
4. Send Data to BHT
5. View Data File

                           ESC to exit

Enter menu option  4
```

S151 Menu Screen

The MENU SCREEN is divided into three sections :

- Communications Settings
- Data File operations
- Program File operations

We will deal with each section separately.

Make sure that you select valid files in the data file (section 5.2) and program file (section 5.3) sections.

5.1 Communication Settings

```
COM Port Settings    : COM1:19200,N,8,1
Hardware Handshaking : ENABLED
Software Handshaking : ENABLED
Io Method            : Interrupt
```

COM Port Settings

Typing “C” will display the communications port selection at the prompt. This option allows selection of the serial communication port and parameters on the host computer, that will be used to connect to the BHT.

```
Use TAB to move and ENTER to select.

Comm Port No : 1 2 3 4
Speed : 300 1200 2400 4800 9600 19200
Parity : N E O
Data Bits : 7 8
Stop Bits : 1 2
```

After completing each selection the next parameter selection line appears, after selecting the number of Stop Bits the cursor returns to the prompt and the new communication parameters are entered into the Com Port Settings line on the screen.

Com Port No: “Tab” to select com. port 1 or com. port 2 then “Enter” for the current selection.

Speed: “Tab” to select the baud rate then “Enter” for the current selection.

Parity: “Tab” to select no (N), even(E) or odd(O) parity then “Enter” for the current selection.

Data Bits: “Tab” to select 7 bits or 8 bits then “Enter” for the current selection.

Stop Bits: “Tab” to select 1 stop bit or 2 stop bits then “Enter” for the current selection.

Hardware Handshaking

Typing “H” toggles the hardware handshake from “ENABLED” to “DISABLED” and back. This controls the use of RTS/DTR handshake control lines on the host computers selected communications port.

This is used when communicating with the BHT communication sleds. The direct connect versions of the BHT2000 and 3000 series have no hardware handshaking and require this setting to be disabled.

Software Handshaking

Typing “S” toggles the software handshake from “ENABLED” to “DISABLED” and back. XON/XOFF is the software handshaking protocol that is used in S151.

When sending files to the BHT it will send the XOFF character if its buffer becomes full, S151 stops sending and waits for an XON character, if XON is not received, pressing the “ESC” key will complete the action and return to the prompt. If escape is used the file transfer may not have been completed correctly.

When receiving files from the BHT the host computer will send the XOFF character to the BHT if its buffer is full. The XON character is sent to the BHT when buffer is cleared. Pressing the “ESC” key will abort the receiving of files and return control to the menu.

IO Method

Typing “I” selects the communication ports interrupt method.

Interrupt the default setting, S151 creates its own interrupt handlers with a receive and transmit buffer. Each time the com port is used the interrupt handler is called and the character is stored in the buffer.

See page 40 for hardware interrupt settings.

Polled BIOS 14h is a method that uses the BIOS 14h routines to poll the com port and transfer the data. Maximum baud rate with this method is 9600 baud.

Polled Extended Bios 14h similar to the previous method but can only be used on the PS/2 type computers and with baud rates higher than 9600

Handshake requirements.

Handshaking requirements vary, depending on what type of file you are sending and what connection on the BHT is being used. The following table outlines the handshake that is used:

File Type	Connection	Hardware H/S	Software H/S
Program Files	Opt.	ENABLED	DISABLED
	IFC	DISABLED	DISABLED
BHT Protocol Data files	Opt.	ENABLED	DISABLED
	IFC	DISABLED	DISABLED
S150 Data Files	Opt.	ENABLED	ENABLED*
	IFC	DISABLED	ENABLED*
*** If software handshake is turned off file transfer should be done at slower speeds**			

5.2 Data File Operations

```
     UMD S150 DATA FILE FORMAT
  FILE: FILE.TXT
1. File Format (S150/EasyPack)
2. New Data File Name
3. Receive Data from BHT
4. Send Data to BHT
5. View Data File
```

1. File Format

Typing “1” toggles the selection of the type of data file that is to be sent or received. The default setting is for S150 BHT Collect data files (see BHT Collect user manual for S150 data format).

The BHT Protocol selection is for native Nippondenso data files (see Nippondenso EasyPack manuals for data format) to be sent or received from the BHT when running in SYSTEM MENU or using Easy Pack. The display next to the "DATA FILE FORMAT" will change from "UMD S150" to "BHT Protocol" to reflect your selection.

2. New Data File Name

Type "2" for this option. This option tells the transfer utility the name of the data file that you intend to transfer. The request for the data file name appears at the prompt. Enter filename or "ESC" to return to the menu.

```
New Data File Name: FILE1.TXT
```

If the file is located, the cursor returns to the menu and the filename is entered into the filename area. If the file is not located the program asks to create a new file of that name. Pressing the "n" key returns to the menu and pressing the "y" key creates the file in the current directory and returns to the menu. DOS path\filename conventions can be used, eg:

```
New Data File Name: A:\FILES\FILE1.TXT
```

If path\filename exceeds 26 characters the extra characters are replaced with "**..**" ie:

```
New Data File Name: ..\FILES\FILE1.TXT
```

3. Receive Data from BHT

NOTE: The way data is transferred in this option is dependent on the the setting of the file format, UMD S150 Data File format or BHT Protocol data file format (see selection 1).

a) Receiving Data in S150 format.
Make sure you have selected the filename (see selection 2), the file

will be saved with this name. Make sure the communications parameters are set correctly and the BHT is ready to upload a data file.

Pressing the “3” key invokes the following message:

```
If file exists it will be overwritten.
 Continue (y/n) ?
```

Pressing the “n” key will return you to the menu.

Pressing “y” at the prompt will display the following message:

```
Receiving Data File from BHT  (ESC to end)
```

If successful the record numbers will appear at the prompt and upon receiving an EOF, the program will return to the menu. Pressing the “ESC” key will terminate the transfer and return to the menu.

b) Receiving Data in BHT Protocol format.
The BHT Protocol file received has its filename embedded in the file, not the filename indicated on the screen. Make sure the communications parameters are set correctly and the BHT is ready to upload a data file.

Pressing the “3” key invokes the following message:

```
If file exists it will be overwritten.
 Continue (y/n) ?
```

Pressing the “n” key will return you to the menu.

Pressing “y” at the prompt will display the following message:

```
RECEIVING BHT Protocol DATA FILE FROM BHT

Establishing Data Link
```

If no link is established the S151 software will wait forever, pressing the “ESC” key will return to the menu.

When the link is established the file information will be displayed:

```
Receiving Data Frames
File Name : FILE3.DAT
NoFields  : 4
Field[01] Length : 11
Field[02] Length : 15
Field[03] Length : 14
Field[04] Length : 4
Records: 00100/00100

Releasing Data Link
```

When the link is released control is returned to the menu.

4. Send Data to BHT

NOTE: The way data is transferred in this option is dependent on the setting of the file format, UMD S150 Data File format or BHT Protocol data file format (see selection 1).

a) Sending Data in S150 format.

Make sure the communications parameters are set correctly and the BHT is ready to have a file downloaded.

Type “4” at the menu prompt, the file that has been selected using selection 2 will now be transferred to the BHT.

```
Send Data File (Esc to end)

Record xxxx

End of sending data file
```

When the data file has been sent, control is returned to the menu.

b) Sending Data in BHT Protocol format.
Make sure the communications parameters are set correctly and the BHT is ready to download a data file.

Type “4” at the menu prompt. Sending an BHT Protocol data file requires the number of fields and the length of each (number of characters) to be entered into the prompt area (see Nippondenso EasyPack manuals for data format). When the prompt appears, the **default** values are displayed on the screen, **change** these to suite your file. Pressing the “ESC” key will abort and return control to the menu.

```
Number of Fields (1-99): 5
Length of Field 01 (1-16): 10
Length of Field 02 (1-16): 10
Length of Field 03 (1-16): 10
Length of Field 04 (1-16): 10
Length of Field 05 (1-16): 10
SENDING BHTProtocol DATA FILE TO BHT

Establishing Data Link
```

If data link is not established, after about 10 seconds, control returns to the menu. When data link is established the following messages appear:

```
Transmitting Data Frames
Records  xxxx/xxxx

Releasing Data Link
```

Control now returns to the menu.

NOTE: If you send a data file to the BHT and the file name already exists in the BHT and the field lengths are different an error will occur. The data link will be established but the BHT will just wait.

5. View Data File

Type “5” for this option. The filename indicated in the data file section will be the file displayed.

The contents of the file will be displayed one screen at a time. Any key pressed will display the next screen and pressing the “ESC” key will exit to the menu.

```
PRODUCT         QUANTITY        TIME
 13              3               17
DATE:94/07/18 TIME:05:17:45
4007817504598  20               94/07/18 05:11:32
012345678      12               94/07/18 05:11:45
0051131586260  10               94/07/18 05:11:59
9310715820000  50               94/07/18 05:13:25
a123456a       7                94/07/18 05:13:52
0031323120786  32               94/07/18 05:14:31
4901567014010  20               94/07/18 05:14:50

End of Viewing Data File
```

5.3 Program File Operations

```
         PROGRAM FILE
    FILE: BHT_COLL.PD3
6. New Program File Name
7. Receive Program from BHT
8. Send Program to BHT
```

6. New Program File Name

Type "6" for this option. The request for the program file name appears at the prompt. Enter filename or press the "ESC" key to return to the menu.

```
New Data File Name: FILE1.TXT
```

If the file is located the cursor returns to the menu and the filename is entered into the filename area. If the file is not located the messages indicates that the file could not be located and prompts again for a filename. DOS path\filename conventions can be used, eg,

```
New Data File Name: A:\FILES\FILE1.TXT
```

If path\filename exceeds 26 characters the extra characters are replaced with "**..**" ie,

```
New Data File Name: ..\FILES\FILE1.TXT
```

7. Receive Program from BHT

Type "7" to receive a program file. The BHT sends (uploads) program files to the host computer under the control of its SYSTEM MENU and so the BHT transmission protocol is used. Also regardless of the filename shown on the screen, program files have embedded names. The embedded name will be used when the file is saved. The message below is displayed:

```
If file exists it will be overwritten.
 Continue (y/n) ?
```

Pressing the “n” key will return to the menu, pressing the “y” key will continue:

```
RECEIVING PROGRAM FILE FROM BHT

Establishing Data Link

Receiving Data Frames
File Name :BHT_COLL.PD3
Frames: 00308/00308

Releasing Data Link
```

Pressing the “ESC” key while receiving a file will abort the receiving of the file and only the data in the buffer will be saved to disk.

8. Send Program file to BHT

The program file that is sent is the file selected using the menu option 6 and must be a valid BHT Basic compiled program, usually with a PD3 DOS program name extension.

Type “8” to send a program file. The BHT receives (downloads) a program file under control of its SYSTEM MENU and so the BHT transmission protocol is used.

Pressing the “ESC” key will return to the menu only if communication has stopped, once communication is established and the program file is being sent it can only be interrupted from the BHT end:

```
SENDING PROGRAM FILE TO BHT

Establishing Data Link

Transmitting Data Frames
Frames: 00308/00308

Releasing Data Link
```

5.4 Error Listing when Using Menu Options

1. **"Error: Cannot open data file."**
   In receiving and sending the Data File could not be opened.

2. **"Time out error"**
   When receiving data and there has been no data sent after a certain amount of time (2 secs), this message appears and ends the procedure.

3. **"Transmission Stopped"**
   The user interrupted transmission with the ESC key.

4. **"Abnormal End"**
   If the PC cannot put any more characters to the COM port because the slave device is not ready or responding, the user can exit the wait routine with the ESC key and this message appears.

5. **"Cannot find Data/Program file."**
   If the file is for reading only (sending) it will display this message if it cannot find the file in the current or specified directory.

6. **"Cannot open Data/Program file."**
   The file is for writing and reading. It could not open or create the file.

7. **"Incorrect Field Length"**
   When sending an BHT Protocol data file, a record's field length did not match the expected length.

8. **"No response"**
   When sending an BHT Protocol Data or Program file the communication link was lost or interrupted.

9. **"Too many NAK retries"**
   When receiving an BHT Protocol Data or Program file it gives this message if it re-sent the same frame more then 10 times.

10. **"Error: Only a max of 16 Fields allowed"**
    When sending an BHT Protocol Data File, a value greater than 16 was entered for the number of fields.

11. **"Error: Field Length Range is (1-99)"**
    When sending an BHT Protocol Data File, a value greater than 99 or less than 1 was entered for the Field Length.

12. **"Error: Total Field Length + Number of Fields cannot be > 255"**
    When sending an BHT Protocol Data File, the total length of all the field lengths plus the number of fields cannot be greater then 255.

6 Using Command Line Options in S151

To view the command line options on the screen;

a:\>**S151 ?** (↵)

```
UMD BHT Transfer Utility  .. S151     Version 1.3
Copyright (c) Unique Micro Design PTY LTD, 1994.
All rights reserved.

Usage: S151 [options]
-b[Batch File Name]  ONLY (no other options with this switch).
                       Allows multiple Command Line Transmission.
-rd[Data File Name]  Receive a data file from BHT.
-sd[Data File Name]  Send a data file to BHT.
-rp                  Receive a program file from BHT.
-sp[Prog File Name]  Send a program file to BHT.
-c[COM<Com Number>:<Speed>,<Parity>,<Data Bits>,<Stop Bits>]
                    Change COM Port settings.   <Speed>:19200
                         9600,4800,2400,1200,600,300.
                       <Parity>: N = None, E = Even, O = Odd.
                       <Data Bits>: 7,8.
                       <Stop Bits>: 1,2.
-e[<Field Width #1>,..,<Field Width #n>]
                       BHT Protocol Data File with Field Widths.
-u                     UMD Data File.
-v[Data File Name]   View data file.
-h[<s><h><n>]        Handshaking; <s> - Software
                       <h> - Hardware, <n> - None.
-q                     Quiet Mode: No output on screen
-i[<nt><14><14e>]  IO Method; 'int' for interrupt mode, 'i14'
                       for BIOS 14h polling mode, 'i14e'
                       Extended BIOS 14h.
```

S151 Commands Help Screen

The S151 command line options can be entered in any order but must be separated by a space, there is no space however between an option and a filename, the commands are not case sensitive.

In Command Line Mode, in the event of an error, a DOS ERRORLEVEL value will be given when the program terminates. The ERRORLEVEL values are in Appendix III.

If settings are not specified for an option at the command line the default settings are used.

The following are the default settings taken by S151:

COM 1serial port @ 19.2K baud,No parity,8 data bits,1 stop
Handshaking: Software disabled / Hardware enabled
Mode: (file format) - BHT Protocol
Data filename: - File.txt
Program filename: - BHT_COLL.PD3
Default Data file construction: - 2 fields / 10 characters per field
I/O method - Interrupt
Quiet Mode - Disabled

Handshake requirements.

Handshaking requirements vary, it depends on what type of file you are sending and what connection on the BHT is being used. The following table outlines the handshake that is used:

File Type	Connection	Hardware H/S	Software H/S
Program Files	Opt.	ENABLED	DISABLED
	IFC	DISABLED	DISABLED
BHT Protocol Data files	Opt.	ENABLED	DISABLED
	IFC	DISABLED	DISABLED
S150 Data Files	Opt.	ENABLED	ENABLED*
	IFC	DISABLED	ENABLED*
*** If software handshake is turned off file transfer should be done at slower speeds**			

6.1 Specific information for the Command Line Options

-rd[UMD Data File] -u -hs Receive a S150 data file from BHT.

eg -rdFILE.TXT -u

Make sure the communications parameters are set correctly and the BHT is ready to upload a data file.

```
UMD BHT Transfer Utility .. S151    Version 1.3
Copyright (c) Unique Micro Design PTY LTD, 1994
All rights reserved.


Receiving Data File from BHT  (ESC to end)
```

If successful the record numbers will appear at the prompt and upon receiving an EOF, the program will return to DOS. Pressing the “ESC” key will terminate the transfer and return DOS.

Software handshake is required when receiving a data file from S150, a warning message will be displayed if not set.

-rd Receive BHT Protocol Data File

NOTE: the filename will be the name embedded in the BHT Protocol data and so no filename is required on the command line.

Make sure the communications parameters are set correctly and the BHT is ready to upload a data file.

```
UMD BHT Transfer Utility  . S151    Version 1.3
Copyright (c) Unique Micro Design PTY LTD, 1994
All rights reserved.

RECEIVING BHT Protocol DATA FILE FROM BHT

Establishing Data Link
```

If no link is established the S151 software will wait forever, pressing the "ESC" key will return to DOS. When the link is established the file information will be displayed:

```
Receiving Data Frames
File Name : FILE3.DAT
NoFields  : 4
Field[01] Length : 11
Field[02] Length : 15
Field[03] Length : 14
Field[04] Length : 4
Records: 00100/00100

Releasing Data Link
```

When the link is released control is returned to DOS.

-sd[UMD Data file] -u -hs Send a S150 data file to BHT

eg -sdout.txt -u -hs

Make sure the communications parameters are set correctly and the BHT is ready to have a file downloaded.

```
UMD BHT Transfer Utility  . S151    Version 1.3
Copyright (c) Unique Micro Design PTY LTD,1994.
All rights reserved.

Send Data File (Esc to end)

Record xxxx

End of sending data file
```

When the data file has been sent the program will return to DOS.

Software handshake is required when sending a data file from S150, a warning message will be displayed if not set, also a filename must be supplied.

-sd[BHT Protocol Data File]-e[Field width#1, Field width #n]

Send an BHT Protocol data file to BHT

eg -sdEASY.DAT -e10,10

Make sure the communications parameters are set correctly and the BHT is ready to have a file downloaded.

```
UMD BHT Transfer Utility  . S151    Version 1.3
Copyright (c) Unique Micro Design PTY LTD,1994.
All rights reserved.

SENDING BHT Protocol DATA FILE TO BHT

Establishing Data Link
```

If the data link is not established, after about 30 seconds, control returns to the menu. When data link is established the following messages appear:

```
Transmitting Data Frames
Records  xxxx/xxxx

Releasing Data Link
```

Control now returns to DOS.

-rp Receive a program file

Make sure the communications parameters are set correctly and the BHT is ready to upload a program file.

NOTE: A file name is not required, program files have embedded names. The embedded name will be used when the file is saved.

```
UMD BHT Transfer Utility  . S151    Version 1.3
Copyright (c) Unique Micro Design PTY LTD,1994.
All rights reserved.

RECEIVING PROGRAM FILE FROM BHT

Establishing Data Link

Receiving Data Frames
File Name :BHT_COLL.PD3
Frames: 00308/00308
```

```
Releasing Data Link
```

Program now returns to DOS.
The BHT will fill the end frame with "0's" so that a full frame is transmitted.

-sp[ProgramFile] Send a program file
eg -spBHT_COLL.PD3

Make sure the communications parameters are set correctly and the BHT is ready to download a program file.

```
UMD BHT Transfer Utility  . S151    Version 1.3
Copyright (c) Unique Micro Design PTY LTD,1994.
All rights reserved.

SENDING PROGRAM FILE TO BHT

Establishing Data Link

Transmitting Data Frames
Frames: 00308/00308

Releasing Data Link
```

Pressing the "ESC" key will return to DOS only if communication has stopped, once communication is established and the program file is being sent it can only be interrupted from the BHT end..

Control is now returned to DOS.

-c[COM<com no.>:<speed>,<parity>,<data bits>,<stop bits>]
....-h[<s><h><n>]

These options are used to control the communications port when sending or receiving data and program files. The communications port and its parameters are set with the "-c" option.
See page 23 for handshaking explainations.

The handshaking options used with "-h" are:

Option	Software H/S	Hardware H/S
-h	No effect	No effect
-hs	ENABLED	DISABLED
-hh(default)	DISABLED	ENABLED
-hsh	ENABLED	ENABLED
-hn	DISABLED	DISABLED

-int -i14 -i14e Interrupt method.

-int Interrupt the default setting, S151 creates its own interrupt handlers with a receive and transmit buffer. Each time the com port is used the interrupt handler is called and the character is stored in the buffer.

-i14 Polled BIOS 14h is a method that uses the BIOS 14h routines to poll the com port and transfer the data. Maximum baud rate with this method is 9600 baud.

-i14e Polled Extended Bios 14h similar to the previous method but can only be used on the PS/2 type computers and with baud rates higher than 9600

The hardware interrupts for the communcation ports are set at :

Com 1/3	—	IRQ 4
Com 2/4	—	IRQ 3

-b[batch file name] batch file switch

This allows the user to perform multiple Command line transfers without re-loading the S151 program. Create a batch file containing the same options or switches that appear on the command line. Below is an example batch file to download multiple data files to the BHT.

```
EXAMPLE.BAT
-sdclass.dat -e8,4,4,3 -cCOM1:9600 -q
-sdnames.dat -e11,10 -cCOM1:9600
-sdcode.dat -e6 -cCOM1:9600
```

Each line from the batch file is processed before moving to the next and all defaults are reset before starting the next transfer. This batch file is implemented on the command line as follows :

```
C:\> S151 -bEXAMPLE.BAT (↵)
```

There must not be any other switches or options on the command line. Each line will be processed as it is reached. When one transfer is completed the next will begin immediately.

-q quiet mode

This will turn off any screen output.

In the first line of EXAMPLE.BAT above the “-q” switch is used to indicate quiet mode and is only effective for that first transfer, the “-q” switch must be entered on each line of commands prevent any screen output. This does not effect the DOS ERRORLEVEL output..

6.2 Command Line Examples

Example #1

```
a:\>s151 -cCom2:9600,N,8,1 -spProg.PD3  (↵)
```

The program file PROG.PD3 will be sent to the BHT using com port 2 at 9600 baud, no parity, 8 data bits and 1 stop bit. Make sure the BHT has been setup to download a program file.

Example #2

```
a:\>s151 -rd  (↵)
```

The host computer will receive a BHT Protocol data file on com port1 at 19.2K baud, no parity, 8 data bit and 1 stop bit. Make sure the BHT has been setup to upload a data file, select the file from the list on the BHT, it will be saved on the host computer as this filename. It is worth noting the number of fields and there lengths for later reference.

Example #3

You want to receive a data file (named myfile.txt) from the BHT which is running BHT Collect using the default communication values in BHT Collect except for no handshaking being used, you have the BHT ready to send the data and the BHT is connected to com port 2 via the direct connect cable.

Com port 2 is being used with no handshaking. The command line looks like this:

```
a:\>s151 -rdmyfile.txt -hn -ccom2 -u  (↵)
```

Example #4

```
a:\>S151 -sdEXP.DAT -e5,6,3  (↵)
```

The BHT Protocol data file EXP.DAT which has 3 fields of length 5 characters, 6 characters and 3 characters respectively will be sent to the BHT using default com port and communication settings.

NOTE: If the field lengths of an BHT Protocol data file have been changed and you wish to download the data file again into the BHT an error will occur. The BHT unit will not accept the changed field lengths. You must first erase the Data file in the BHT unit and then download the new/altered data file.
eg: EXP.DAT is already in BHT unit as shown above, and you do the following:

```
a:\>S151 -sdEXP.DAT   -e6,5,3  (↵)
```

the BHT unit will continue to wait.

Initialise BHT or erase the original EXP.DAT file and then download again.

6.3 Error Listing when Using Command Line Options

1. **"Error: All parameters must start with a '-'"**
   Occurs when an unknown parameter is entered from the Command Line.

2. **"Error: Must include field information to send BHT Protocol File"**
   When Sending an BHT Protocol Data File and an '-e' is sent without any field lengths.

3. **"Error: Field Length must be between 1 and 99"**
   In '-e' the Field Length entered exceeded allowable range.

4. **"Error: Must include 'COM'"**
   When '-c' is used and the 'COM' string is not used.

5. **"Error: Com Ports from 1 to 2"**
   When '-c' is used and Com Port number is not 1 or 2.

6. **"Error: Unknown Com Speed"**
   When '-c' is used and the Com Speed is none of the following ;
   300,600,1200,2400,4800,9600,19200.

7. **"Error: Unknown Com Parity"**
   When '-c' is used and the Com Parity is not N, E, or O.

8. **"Error: Unknown Com Data Bits"**
   When '-c' is used and the Com Data Bits is not 7 or 8.

9. **"Error: Unknown Com Stop Bits"**
   When '-c' is used and the Com Stop Bits is not 1 or 2.

10. **"Error: Invalid Handshaking Parameter (only shn)"**
    When '-h' is used and the handshaking parameter is not s, h or n.

11. **"Error: Unknown argument : ?"**
    The argument after the '-' is not defined.

Appendix I Specifications

Language	Written in Borland C++ V4.0
System Requirements	Requires MS DOS 4.01 or later
	PC/AT Series, PS/2 Series computers
Serial Communication Ports	Com1, 2, 3 and Com4 Selectable
Baud Rate	300 to 19.2K Baud rate
Number of Character Bit	7 or 8 data bits
Number of Stop Bits	1 or 2 Stop bits
Communicates with BHT2000,BHT3000 and BHT4000 series Nippondenso PDE Handy Terminals	
Easy Pack compatible	
UMD S150 BHT Collect compatible	

Appendix II Ordering Details

Part No	Model No.	Description
9-3151-400-7	S151-4	BHT Transfer Utility 1.4MB / 3.5" diskette
9-3151-300-1	S151-2	BHT Transfer Utility 1.2MB / 5.25" diskette
		Documentation
9-3151-992-6	DOC-S151-PD	S151 Product Description
9-3151-993-4	DOC-S151-UM	S151 User Manual
		Associated Software
9-3150-400-2	S150-4	BHT Collect Software 1.4MB / 3.5" diskette
9-3150-200-0	S150-2	BHT Collect Software 1.2MB / 5.25" diskette
9-3150-992-1	DOC-S150-PD	S150 Product Description
9-3150-993-9	DOC-S150-UM	S150 User Manual

Appendix III DOS Errorlevel values for Command Line Mode

Error Level	DOS Return Error
0	No error
1	Cannot open a file
2	File name entered in wrong form.
3	Number of records exceed 32767.
4	Field length is out of range (1-99).
5	Number of fields is out of range (1-16).
6	Record length is out of range.
7	Unknown parameter.
8	Field length not found.
10	Com switch (-c) entered incorrectly.
11	Com Port does not exist.
12	Unknown Handshake parameter
51	Too many NAK's were sent.
52	A premature EOT was sent.
53	Communication stopped and has no response.
54	A communication time-out error.
90	Communication was interrupted.
92	Not all data was received.
93	Incorrect BCC.
94	Expected sequence number incorrect.
95	Abnormal end (Unexpected EOT).
96	Too many ENQ retries.
97	Unexpected end of file.
98	Incorrect Batch File Format
99	Cannot find Batch File

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