TI*RFID READER MANAGER

RI-ACC-S01A

Contents

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1. Purpose

The TIRIS Reader Manager (hereafter TRM) is a program designed to control all readers in the TIRIS family, running on a personal computer and controlling the reader via the communication port. This document describes the procedures for installing and running the program. For details of the operational setup and functions available for a specific TIRIS reader, please refer to the manual supplied with the reader.

2. Scope

This document is a User Manual describing the TIRIS Reader Manager software, version 1.3x.

3. Installation

The TRM program is supplied on one 3.5 inch diskette. The following files can be found on the diskette:

INSTALL.EXE	Automatic installation program
SETUP.INF	File list used by Install.exe
TRM.EXE	TRM executable program
TRM.ICO	Windows icon
TRM.PIF	Windows PIF file
SUPPORT.LST	List of supported reader versions
S2CON.INI	File containing reader configuration parameters
TSM.INI	File containing TRM parameters
README.FILE	Text file containing information about the latest changes

3.1 System Requirements

This program should only be installed on a PC-AT (80386 or greater), with 640 Kb or more RAM and at least one serial communications port, running DOS from version 3.0 onwards. It can be run from a diskette drive, but it is recommended to install it on a hard disk to increase loading speed and to provide adequate disk space for transponder ID file logging.

At least one standard TIRIS reader must be connected to the PC for the TRM program to function. Connection to the reader is via the serial communications port. The reader must be connected to its own power supply.

For details of power supplies and serial cable connections for specific readers, refer to the Reference Manual for that reader.

Although TRM is **not** a Windows program, it may be run as a DOS task under Windows. A Windows icon (TRM.ICO) and PIF file (TRM.PIF) are provided for this purpose.

3.1.1 Backup Copy

Under the licensing agreement it is permitted to make one copy of the distribution diskette for backup purposes. Copy the diskette before installation and store the copy in a safe place in case the original diskette becomes damaged.

3.2 Automatic Installation

Before starting the installation program you should check whether a mouse is installed on the PC and, if so, whether it is connected via a serial port (COM1, COM2) or via a bus or PS/2 connection. This will allow the installation program to eliminate contention between the mouse and readers controlled on the serial port(s).

Installation from the distribution diskette is controlled by a custom installation program. Insert the diskette in the drive, and at the DOS prompt (***A:***\> or ***B:***\>) type *INSTALL* and press the ***Enter*** key.

Once the Install program starts you will be prompted for a number of parameters. By simply pressing ***Enter*** the default values are used. If alternative values are desired these can be over-typed. Use ***Backspace*** to correct any entries.

At any time installation can be aborted by pressing ***Ctrl-C***. This allows you to return to DOS. The installation program references environment variables which may be already set in the AUTOEXEC.BAT file, using them to suggest default values.

The following prompts will be seen as the installation program runs:

Enter the destination path :
C:\TSM

Press ***Enter*** if this is the desired destination directory for the program files; if not, over-type the desired directory path.

Enter the path for the temporary transfer files :
C:\WIN\TEMP

This defines the directory where temporary transponder data files are stored. These are deleted when the program is ended.

If the environment variable *TEMP* is set in the file AUTOEXEC.BAT this will be displayed as the suggested path. This can be altered to any other directory path as desired.

Enter the path of your favorite text editor :
EDIT

A DOS editor program can be accessed from within TRM for editing transponder data files (one editor must be defined in the system before this function can be used).

If the environment variable *EDITOR* is set in the file AUTOEXEC.BAT this will be displayed as the suggested path. This can be altered to the path of any other editor as desired. If you do not know which editors are present, we recommend that you enter *EDIT* to utilize the editor supplied with MS-DOS, provided version 5.0 or greater is present.

Enter your serial number :

Enter the serial number provided on your distribution diskette label.

Enter your personal key :

Enter the personal key (16 digits) provided on your distribution registration form.

IMPORTANT:
If the serial number and personal key are not entered exactly as written on your diskette label the TRM program can not be started.

If you have a serial mouse connected enter the port number :

If a serial mouse (not bus mouse or PS/2 mouse) is connected, enter the COM port number (1 - 4) and press ***Enter***. This will prevent the automatic reader detection program from writing to the port used by the mouse.

If no serial mouse is connected simply press ***Enter***.

Next the installation program will copy the required files into the directory specified in the destination path. In addition it will create a file, TSM.INI, which contains configuration data used by the program TRM.EXE on startup.

The file TSM.INI uses a format similar to the Windows file WIN.INI to store program configuration data in a readable format. It can be edited by the user but this should not be necessary in normal use of the TRM program, since all valid configuration settings can be changed automatically from within the TRM program or the Install program.

For details of the TSM.INI settings see Appendix A.

4. Starting the Program

After quitting the installation program, the current directory is set to the destination path you entered.

Ensure that the reader(s) is connected to the serial communications port via the correct cable and that power to the reader is switched on.

Ensure that the reader is connected to the serial communications port via the correct cable and that power to the reader is switched on. If you are using an RS485 network, ensure that the used communication card is compatible with the software (see Appendix C for recommended communication cards).

Type TRM and press Enter to start the program. The program version and copyright notice will display for 10 seconds or until a key is pressed. After a successful startup the Reader Select Menu is displayed with four options:

Series 2000 Reader Selects sub-menus for communicating with a Series 2000 Reader.

Series 2500 Reader Selects sub-menus for communicating with a Series 2500 Reader.

ASCII Terminal When the reader is already configured to use ASCII protocol (or is operating in default mode), this option can be used to send ASCII commands to the reader via a simulated ASCII terminal. The window displays the inputs exactly as received from the reader, with the command sent plus any response. This provides a method of quickly testing a reader 'out of the box'. It is not possible to use the terminal for TBP.

Quit Quits the program and returns to DOS

Once a Reader Type (Series 2000, Series 2500) is selected, the Protocol Menu is displayed with three options. From here the protocol type and corresponding reader port are selected.

ASCII Protocol - Reader Comms Port Selects the ASCII protocol to communicate with the connected readers.

TIRIS Bus Protocol - Reader Comms Port Selects the TIRIS bus protocol to communicate with the connected readers using either:
RS232 for point-to-point, or
RS422 for point-to-point connections or
RS485 for a network of readers.

Configuration - Reader Service Port Selects the configuration of Series 2000 or Series 2500 readers via the service port. The same option occurs in the ***Main Menu*** to allow configuration via communication port.

Once a protocol has been selected, a protocol specific set of menus allows the connection of the reader and leads to the common ***Main Menu***. From this menu all other options can be entered.

IMPORTANT:
When disconnecting or connecting new readers to the system, return to the ***Connect Menu*** or quit the TRM program completely. Do not reconnect readers or swap cables whilst running under the ***Main Menu*** since the communications parameters and reader instruction set will then not match the current setup.

4.1 Problem Solving

Common problems in running the program and possible causes are listed below:

DOS Message: ***Unknown command TRM***

Program file TRM.EXE is not present.

Installation program did not complete successfully. Run INSTALL.EXE again.

Message: ***Invalid Serial Nr/Personal Key combination***
Please correct your TSM.INI file entries
Press any key to continue

The Serial Number and Personal Key must be entered in the file TSM.INI exactly as supplied with the software installation diskette (this is carried out by the installation program). Either the entries are incorrect or the file TSM.INI is missing.

Run INSTALL.EXE again or edit the file TSM.INI to the correct the key entries.

Message: ***No or unknown reader connected***

No valid (or supported) TIRIS reader could be detected on the PC communication port(s). If this occurs using the ***Manual Connect*** option, try again using ***Auto Connect***. This will recover from incorrectly set PC communication parameters.

If the warning occurs again using ***Auto Connect*** either there is a problem with the reader (check the power is on and the correct communication cable connected), or the reader is not a TIRIS model, or the TIRIS reader is not currently supported by TRM. Consult the file SUPPORT.LST in the installed directory for a current list of supported readers.

IMPORTANT:
If a mouse or other serial device is connected on one of the other serial ports this can cause contention when the ***Auto Connect*** attempts to access the device, or at least can slow the connect operation. One reserved port can be assigned during the installation procedure or by editing the file TSM.INI (see Appendix A). This prevents the program from accessing the reserved port.

5. Using the Menus

5.1 Navigating Around the Menu System

Once the Main Menu is displayed the various reader control functions can be run. The screen display has a number of separate fields serving different purposes. At the top of the screen is the *Title* and *Release* information. Below is the *TRM Status box*, showing the current settings for the reader. The main area of the screen is reserved for the menu boxes. A system of overlaid pop-up menus is used to navigate the system and control the reader. At the bottom of the screen a *Response box* shows the status of the last command that was executed. Underneath the box a prompt displays which keystrokes are valid for the current operation.

Each menu, when displayed, is overlaid over previous menus, with the titles visible. ***Esc*** always quits the current menu and returns to the previous menu. Menu items are selected by moving the highlight bar with the Up or Down arrows or, alternatively, by typing the highlighted letter of the required item. Pressing ***Enter*** then activates the option.

Since TRM is a universal program capable of controlling many different TIRIS readers, some options may not be available for any given reader. If you attempt to run such an option, the following status will be seen:

Invalid Command

This error is also displayed if the transponder type being used does not support the command.

5.1.1 TRM Status Box

This allows you to see at a glance the current configuration of the TRM and the reader, containing up to four fields. These are (reading from left to right):

Reader status e.g. ***S2000 - REV1.30 at COM2:***

This shows the reader type, revision number, and port connected.

Transponder type e.g. ***TRP Type: Multipage***

This can be ***Multipage*** or ***SAMPT*** or ***R/W*** or ***RO*** (Read/Write or Read Only).

Page Number e.g. ***Page No: 1***

Page selected for read or write operations. This field is displayed only if transponder type is Multipage.

Number base e.g. ***Base: Dec***

Number base for display of read transponder IDs and for accepting ID data to write to the transponder. This can be ***Dec*** (decimal) or ***Hex*** (hexadecimal).

5.2 Protocol Menu

5.2.1 ASCII Protocol - Reader Comms Port

5.2.1.1 Connect Menu

Auto Connect Automatically detects TIRIS readers connected to any of the installed serial communication ports (COM1 - COM4). Baud rates are automatically adjusted to match the connected readers. You can use this option if you are unsure of the current reader settings.

If one or more reader are detected on multiple ports, a sub-menu showing each detected version number is offered to allow you to choose which reader to control under TRM.

If no readers (or unsupported or non-TIRIS readers) are detected a warning is displayed.

To speed up the auto detection of readers you can narrow the window of baud rates where the software looks for readers. This can be done by setting the values of ***min Baud*** and ***max Baud*** in the ***TRM Setup*** section of the TSM.INI file to a value between:

0 and 7, representing baud rates: from 600 to 57600 for the S2000; and
0 and 8 representing baud rates from 600 to 115200 for the S2500.

Defaults are 1 for min Baud and 4 for max Baud. See Appendix A for details of all possible settings.

Manual Connect When you know precisely what communication settings the reader requires, or has previously saved the correct set-up values, this option can be used.

The Config menu allows new communications parameters to be set for the PC serial port to match those set on the connected reader (COM Port, Baud rate, Data bits, Parity, Stop bits, Hardware Interface). When the required settings are complete (or the saved settings are required) select Continue to communicate with the reader.

TIP:
For a given reader configuration, once ***Auto Connect*** has been run once, save the set-up (***Setup*** menu). When starting the program again, use ***Manual Connect***, then ***Continue*** to go directly into the program. This saves time since it is not necessary for the program to test all ports and baud rate settings.

5.2.2 TIRIS Bus Protocol - Reader Comms Port

5.2.2.1 Connect Menu

The Config menu allows the communications parameters to be set for the PC serial port to match those set on the connected reader network (COM Port, Baud rate, Data bits, Parity, Stop bits, Hardware Interface, Error Checking). When the required settings are complete (or the saved settings are required), select ***Continue.***

Once a configuration has been selected, the ***Master ID*** dialog box appears to set the reader ID for the master (PC in this case). The range for reader ID is from 0 to 254 with 0 a default value.

After setting the ***Master ID*** you have the choice between:

Auto Connect Automatically detects up to 31 TIRIS bus protocol readers connected to the previously selected communication port. Since there are 254 IDs to check, this can take up to 3 minutes.

To speed up the auto detection of readers you can narrow the window of IDs where the software looks for readers. This can be done by setting the values of ***minID*** and ***maxID*** in the ***TRM TBP*** section of the TSM.INI file to a value between 0 and 254. Defaults are 1 for minID and 32 for maxID.

If one or more reader are detected, a sub-menu showing each detected reader ID is offered to allow you to choose which reader to control under TRM.

If no readers (or unsupported or non-TIRIS readers) are detected a warning is displayed.

Manual Connect When you know precisely what IDs the connected reader have, this option can be used and leads to the ***Rdr List Menu***.

5.2.2.1.1 Rdr List Menu

This menu offers three options to set-up a list of reader IDs:

Add Reader Prompts for the ID to be appended to the reader list.

Delete Reader Prompts for the ID to be deleted from the reader list.

Continue Display ***Reader Menu*** to select one of the connected readers and return to the ***Main Menu***.

5.2.3 Configuration - Reader Service Port

With this sub menu a Series 2000 or Series 2500 reader can be configured via its service port connected to a serial port of the PC. Since the TRM configuration menu is equal to the configuration menu of the stand-alone Configuration Utility program, S2CON.EXE, a detailed description can be found in Part 2 of this manual.

5.3 Reader Menu

This option allows a new reader from those connected to be selected for further operations. The newly selected reader is initialized if the ASCII protocol is used.

This option is also available in a number of the commonly used sub-menus to reduce the need for switching menus to select a new reader. Any change is reflected in the TRM Status box.

5.4 Main Menu

All operational and administrative functions can be executed from this menu . Quitting from ***Main Menu*** returns you to the ***Connect Menu*** in every protocol used, allowing another port to be accessed.

5.4.1 Select Type

This option allows the current selected transponder type to be altered. This means that the reader is configured to read or write with this transponder type. You are prompted to select ***TRP Type***:

Multipage TRP	Multipage transponder
SAMPT8	Selective Addressable transponder with 8 bit address
SAMPT16	Selective Addressable transponder with 16 bit address
SAMPT24	Selective Addressable transponder with 24 bit address
SAMPT32	Selective Addressable transponder with 32 bit address
RO or R/W TRP	Read Only or Read/Write transponder

This permits configuration of the transponder type to be: Multipage, 8, 16, 24 or 32 bit Selective Addressable, Read Only or read/Write. If a Multipage or a SAMPT is selected, you are prompted for the Page Number and Address to use. The selected type (and page number) are shown on the TRM status bar.

During Read operations the Address read is indicated in the field next to the Transponder ID. During Program operations the Transponder Address is prompted for. This must be correctly supplied to address the desired transponder during the programming function.

This option is also available in a number of the commonly used sub-menus to reduce the need for switching menus to select a new transponder type. Any change in the type is reflected in the TRM Status box.

5.4.2 Select Reader

See description under ***Reader Menu***.

5.4.3 Read

This sub-menu contains the different forms of read which can be available on a reader.

5.4.3.1 Select Type

See description under ***Main Menu***.

5.4.3.2 Select Reader

See description under ***Reader Menu***.

5.4.3.3 Single Read

Executes a single read on the connected reader for the transponder type configured. If successful, the response box shows the transponder information read, for example:

STU 1 R/W 0004-0000001234567891 12/21/1993 15:47:42.98

Source Antenna Transponder (Page) Transponder ID Date & Time Stamp
Type

This format is used to display the results from all reads, the ID filing function also uses this format when storing read IDs to file.

A response can comprise the following components:

Source	STU	Stationary Reading Unit
	HHU	Hand Held (reader) Unit
	SDK	System Development Kit
	S2000	S2000 Reader
	S2500	S2510 Reader

Future additions will include channel information for multi-channel readers.

Antenna	1	
	2	
Transponder	RO	Read Only transponder
	R/W	Read/Write transponder
	MPT	Multipage transponder
	SAMPT8	Selective Addressable transponder with 8 bit address
	SAMPT16	Selective Addressable transponder with 16 bit address
	SAMPT24	Selective Addressable transponder with 24 bit address
	SAMPT32	Selective Addressable transponder with 32 bit address
Page	(L)1	None, or 1 up to maximum page number for current Multipage transponder. Preceding L indicates page is locked.
Transponder ID	0 to 4095-4503599627370495 (decimal)	
Date	MM/DD/YY	
Time	HH:MM:SS.CC	CC = 1/100th second units

5.4.3.4 Differential Read

The reader reads continuously but only responds with a read transponder ID when it differs from the previously read ID (for example: the same transponder cannot be read twice in succession). The response data is displayed in a scrolling window showing the last 14 IDs read. Response data is logged automatically to a temporary file on disk, if ID filing is ON and so can be viewed later using the ***ID Management*** menu options.

Please refer to the Reference Manual for the reader being used, for the exact operation of this command for the relevant reader.

5.4.3.5 Gated Read

The reader reads continuously but only records each unique transponder ID once. The IDs are stored in the reader until retrieved or cleared by external commands.

How the *Gated Read* option works depends on which protocol the reader is running under. If TRM is running the ASCII protocol, the option is Gated Read, which drives the (simulated) Gate Mode; if TRM is running the TBP, a sub-menu *Gated Read* is opened containing the associated functions. If you are using Gate Mode under TBP you can select any reader in the reader list and control the Gate Mode. Readers may be left running Gate Mode whilst another reader is connected.

Select Reader Allows another reader in the reader list to be connected and controlled. If Gate Mode is running on the current connected reader, a prompt is first displayed 'Leave Gate Mode Running?'. Answering 'Y' leaves this reader in Gate Mode, whilst entering 'N' (the default) switches Gate Mode off before proceeding with the new connect.

Gate Mode Read On/Off This option allows Gate Mode Read to be switched on and off via a toggling function. The menu item will change with each *Enter* to reflect to the current mode, i.e. *Gate Mode Read On, Gate Mode Read Off*.

Get Number of IDs in Reader This command allows the number of ID records stored in the addressed reader to be read without reading the records themselves. The number returned will be displayed.

UploadIDs This command uploads some or all of the stored ID records from the reader to TRM. First the number of IDs currently stored in the reader is displayed. You can accept this number or alter it to any lesser number of IDs to retrieve as required (TRM currently always retrieves IDs starting with the first stored ID).

As the IDs are retrieved from the reader an update of the current number retrieved is displayed on the status line, up to the number of IDs requested.

When all requested IDs have been retrieved they are displayed in a scroll box with the ID index (as stored in the reader), the transponder type and the transponder ID. If, at any time during the ID upload, there is a communications failure between reader and PC, only the IDs retrieved up to that point will be displayed.

Delete ID This command deletes some or all of the stored ID records from the addressed reader. The number of IDs currently stored in the reader is displayed. You can accept this number or alter it to any lesser number of IDs to delete as required.

When leaving the Gated Read menu and Gate Mode is running on the current connected reader, a prompt is first displayed '***Leave Gate Mode Running?***'. Answering '***Y***' leaves this reader in Gate Mode, whilst entering '***N***' (the default) switches Gate Mode off before quitting the menu.

5.4.3.6 Continuous Read

The reader reads continuously, displaying the response data in a scrolling window showing the last 14 IDs read. Response data is logged automatically to a temporary file on disk, if ID filing is ON and so can be viewed later using the ***ID Management*** menu options.

5.4.3.7 Read All Pages (MPT & SAMPT Only)

This function is only available if TRP Type is Multipage or SAMPT. It reads all the pages on the transponder at the reader and displays data from each page in sequence in a window. This presents a quick and easy overview of the contents of a Multipage or SAMPT transponder.

5.4.4 Program

This sub-menu allows you to program the transponder type currently selected. The transponder to be programmed must be in the programming range of the reader as defined for the specific reader and antenna in use.

5.4.4.1 Select Type

See description under ***Main Menu***.

IMPORTANT:
Before programming, you must make sure that the transponder type configured matches the transponder in the programming field of the reader. To program a Multipage or SAMPT transponder, the required page must also be set. This data is always visible in the *TRM Status box.*

5.4.4.2 Select Reader

See description under ***Reader Menu***.

5.4.4.3 User Entry

Select this option to manually enter the ID to be programmed. The prompts for data entry vary according to the number base currently set.

If the base is decimal you are prompted with:

Application Code type a (maximum) 4 digit decimal number

Transponder ID type a (maximum) 16 digit decimal number

The data entered is right-justified before conversion for programming, therefore leading zeros need not be entered (for example: for Application Code 0001, just type *1*). Use ***Tab*** to move between the fields and type data before using ***Enter*** to start the program operation.

If the base is hexadecimal you are prompted with:

Transponder ID type a (maximum) 16 digit hexadecimal number

5.4.4.4 Stored IDs

This allows you to select any of the transponder IDs that have been read or loaded during this session and program a transponder using that selected ID. Using the ***Page Up*** and ***Page Down*** keys the previous or next stored ID is displayed in the entry box. Once a stored ID is loaded to the screen for confirmation it can also be edited prior to initiating the program operation.

The input display formats are the same as in ***User Entry***

5.4.4.5 Program All Pages (MPT & SAMPT Only)

This function is only available if TRP Type is Multipage or SAMPT. It programs all the pages on the transponder at the reader with the same ID. You are prompted for data entry as in ***User Entry.*** The first page to be programmed is the default page selected within the ***Select Type*** Menu.

5.4.5 Lock Page (MPT & SAMPT Only)

One page of a Multipage or SAMPT transponder may be locked using this option. You must enter a confirmation that the operation is desired before the current page is locked:

Are you sure ?N

At the prompt, ***Y*** must be typed, then ***Enter*** pressed for the function to continue, otherwise it will quit, and the transponder page will not be locked.

IMPORTANT:
Lock page is an irreversible process. Once a page is locked it cannot be unlocked again. Please check before starting the operation that the page selected is the correct one.

5.4.6 Utility

This menu controls the various diagnostic and set-up functions available on the TIRIS family of readers. Not all functions are supported by all readers. Please consult the Reference Manual for the relevant reader before using these commands.

5.4.6.1 Select Reader

See description under ***Reader Menu***.

5.4.6.2 I/O Status

This shows the current configuration of the reader's I/O ports used to drive and sense local I/O signals connected to the reader, for example:

Input	***3--0***	Input port numbers 3, 2, 1, 0
	0000	Current setting: Logical 0 or 1
Output	***3--0***	Output port numbers 3, 2, 1, 0
	1111	Current setting: Logical 0 or 1

For further information on how the ports are used, consult the Reference Manual for the reader.

5.4.6.3 Set Outputs

The output ports displayed using I/O Status can also be set using this function. A prompt box, User Entry, displays the output ports and allows each to be set to logical 1 or 0. No other values are valid:

Output	***3--0***	Output port numbers 3, 2, 1, 0
	____	Enter 0 or 1 for each port

For further information on how the ports are used, and the actual voltage levels relating to logical 0 and 1 signals, consult the Reference Manual for the reader.

5.4.6.4 RAM Diagnostic

This function performs a diagnostic check on the RAM in the reader. If successful, the following response is returned:

**** TEST OK***

5.4.6.5 LCD Diagnostic

This function performs a diagnostic check on the LCD display and control circuitry in the reader. (***LCD Diagnostic*** and ***LCD Test*** are similar functions supporting different readers). If successful, the following response is returned:

**** TEST OK***

5.4.6.6 LCD Test

This function performs a diagnostic check on the LCD display and control circuitry in the reader. (***LCD Diagnostic*** and ***LCD Test*** are similar functions supporting different readers). If successful, the following response is returned:

LCD Tested

5.4.6.7 RAM Fill

Overwrites all RAM in the reader with the selected pattern then reads back from each location as verification.

A prompt box, ***User Entry***, allows you to select the desired pattern:

RAM Fill Pattern __

Press ***Enter*** to start the test. On good completion, the following response is returned:

RAM Filled with XX where XX is the fill pattern selected

IMPORTANT:
Do not use this command if the **reader** RAM contains stored transponder IDs which are needed, since it overwrites all reader RAM.

5.4.6.8 Read Memory

This function enables the data stored in RAM in the reader to be inspected. A prompt box, User Entry, allows you to select the starting address in units of 10 (hexadecimal):

Address < 400 ___

On successful completion of the command, the reader returns the address read and the new data of the ID stored.

5.4.6.9 Set Charge Period

The default setting for the charge period (in milliseconds) can be altered for testing the effects of longer or shorter charging

For further information on what charge period values are valid for a specific reader, consult the Reference Manual for the reader.

5.4.6.10 ASCII Terminal

If the reader is already configured to use ASCII protocol (or is operating in default mode), this option can be used to send ASCII commands to the reader as a simulated ASCII terminal. The window displays the inputs exactly as received from the reader, with the command sent plus any response.
This provides a method of quickly testing a reader ‘out of the box’. It is not possible to use the terminal for TBP.

It is usefull for configuring the S2500 via the S2500’s built-in monitor program.

5.4.7 Setup

This menu controls various operational setup and status functions.

5.4.7.1 Select Type

See description under *Main Menu*.

5.4.7.2 Select Reader

See description under *Reader Menu*.

5.4.7.3 Select Antenna

Allows selection of antenna to read from on reader systems with two antennas. A prompt displays the currently selected antenna. You can change this to any valid antenna (*1* or *2*).

5.4.7.4 Display Version

Returns the revision number of the currently connected reader.

5.4.7.5 Base is Dec(Hex)

Toggles the number base setting, used to control what format read transponder IDs are displayed in, and how numbers for programming must be entered. Other numerical displays, such as page numbers or number of IDs loaded\saved, also use this number base.

The menu option text (and *TRM Status box*) alter to reflect the new setting:

Base is Dec number base is decimal

Base is Hex number base is hexadecimal

5.4.7.6 ID Filing is On(Off)

Toggles the automatic filing of read transponder IDs on and off. When turned on, all read transponder IDs are written to a temporary file on disk. Turning the filing off greatly improves the reading speed when running the software from a floppy disk drive.

5.4.7.7 Save Setup

Saves current configuration to the file TSM.INI. This configuration will be used in following sessions until it is saved again or the file is edited.

5.4.8 Color Setup

This menu allows you to configure the screen colors according to personal taste, and enables optimal contrast on different display types.

5.4.8.1 Change Color Items

Each color item may be individually changed to create a custom color setup.

These items may also be pre-configured by editing the file TSM.INI. The item names reflect the identifying names used in this file.

The items are:

Foreground	foreground text
Fg Border	foreground border
Fg Select	foreground selected item
Fg Hilite	foreground highlighted character
Fg SelHilite	foreground selected highlighted character
Background	screen and window background
Bg Border	background border
Bg Select	background selected item
Bg Hilite	background highlighted character
Bg SelHilite	background selected highlighted char

Pressing ***Enter*** on each item in turn allows you to choose a new color from the current palette. Foreground colors can be chosen from a scrollable window of 15 different colors whilst background colors comprise only 8 choices.

5.4.8.2 User Defaults

Three pre-configured palettes with default settings are provided for quick setup of the screen colors:

Yellow Black	Basic color palette
White Blue	Enhanced color palette
White Black	Monochrome/LCD palette

5.4.8.3 Save Color Setup

Saves the selected palette to the file TSM.INI. This configuration will be used in following sessions until it is altered and saved again or the file is edited.

5.4.9 ID Management

This menu controls functions relating to transponder ID data stored in local file on the PC. If ID filing is ON, all transponder data read during a session is stored, (as displayed on the screen) in a temporary file. This file can be used during the session (or afterwards, if saved). The temporary file is deleted when the program is quit.

5.4.9.1 Clear IDs

Clears all currently logged data from the temporary file. When completed, the number of IDs that were cleared is reported in the response box.

5.4.9.2 Display IDs

Displays all currently logged data (or any data loaded from an external file) to a scrollable window on the screen.

5.4.9.3 Load IDs

This option loads any ID file in the valid string format (this can be either previously stored read data or file edited outside the TRM program). If the data does not match the valid string format as logged by TRM, the data from the file is not loaded.

To build a path name for the file to be loaded, a series of windows guide you through the disk filing hierarchy. Simply pressing ***Enter*** in response to each prompt causes the current path to be used. This is displayed in the response box below the windows. From the ***File*** window, a valid ID file can be selected with the Arrow keys, or the filename typed in the ***User Input*** box.

5.4.9.4 Save IDs

The transponder IDs are saved to file in the format (base decimal or hexadecimal) currently in use by the program. When loading IDs back into the program they are converted internally to the selected format.

To build a path name for the file to be saved, a series of windows guide you through the disk filing hierarchy. If, for each response, simply ***Enter*** is pressed, the current path is used. This is displayed in the response box below the windows. From the ***File*** window, a file to be over-written can be selected with the Arrow keys, or a new filename typed in the ***User Input*** box.

5.4.9.5 Edit ID File

To build a path name for the file to be edited, a series of windows guide you through the disk filing hierarchy. If, for each response, simply ***Enter*** is pressed, the current path is used. This is displayed in the response box below the windows. From the ***File*** window, any file can be selected with the Arrow keys, or a new filename typed in the ***User Input*** box. The editor is then called from DOS with the selected file and the editor's own display replaces the TRM screen. If the editor is not configured correctly or does not exist an error will be displayed:

Could not execute <EDITOR NAME> <FILENAME>

In this case quit the program and attempt to run the editor from DOS. It may not exist or may not be in the path definition. If the editor runs correctly outside TRM, check the file TSM.INI for entry ***Editor =*** *<EDITOR NAME>*, where *EDITOR NAME* is the name required to start the editor from DOS.

On quitting the editor you are returned to the ID Management menu.

5.4.10 Buffer Management

This menu controls functions relating to transponder ID data stored in memory in the reader. This can be used to inspect data after using particular read commands which store the transponder data to the reader's internal memory.

5.4.10.1 Select Reader

See description under ***Reader Menu***.

5.4.10.2 Display Buffer

Responds with the current transponder ID, if available, from the reader's internal buffer. This buffer is used by the reader to store the last transponder read, for comparison during commands such as Differential Read.

The transponder ID is displayed:

STU R/W 400006671

or if the buffer is empty:

no ID buffered

5.4.10.3 Display No. of IDs

Responds with the total number transponder IDs stored in the reader

25 IDs stored in the reader

5.4.10.4 Clear ID Memory

Clears all stored IDs from the reader RAM.

ID memory of the reader is cleared

5.4.10.5 Display ID Memory

Reads all the stored IDs from the reader and displays the data in a scrollable window.

1 STU RO 12001234567891

Record Number | Source | Antenna | Transponder Type | (Page) | Transponder ID

The stored IDs can be viewed, and if desired, loaded to a PC file using ***Download ID Memory.***

5.4.10.6 Download ID Memory

Reads all the stored IDs from the reader and appends them to the current temporary log file. Using the ***ID Management*** menu the downloaded IDs can then be viewed using ***Display IDs***. The other functions (***Save IDs, Edit ID File***) can then be used to manipulate and store the data.

5.4.11 Configuration

With this sub menu a Series 2000 reader can be configured via its service port connected to a serial port of the PC. Since the TRM configuration menu is equal to the configuration menu of the stand-alone Configuration Utility program, S2CON.EXE, a detailed description can be found in Part 2 of this Manual.

Appendix A: The TSM.INI File

The file TSM.INI is created by the install program, and contains initialization parameters in a readable form, similar to the WIN.INI file used by Windows. Under normal conditions you need not modify these values since all relevant settings are made automatically via the setup options within the TRM program. An example of the contents of a TSM.INI file is shown below:

[TRM Setup]
SerialNr = 0
PersonalKey = CCFF66000FAA8755
MousePort = 1
TempPath = C:\TMP
Editor = EDIT
BaseIsHex = 0
ComPort = 2
Baudrate = 9600
DataBits = 7
StopBits = 1
Parity = Even
HardwareIF = RS232
ErrCheck = CCITT-CRC
Antenna = 1
Type = MPT
PageNr = 1
minBaud = 3
maxBaud = 4
IDFiling = 0
[TSM Colors]
Foreground = 7
ForegroundBorder = 14
ForegroundSelect = 0
ForegroundHilite = 15
ForegroundSelectHilite = 15
Background = 0
BackgroundBorder = 0
BackgroundSelect = 7
BackgroundHilite = 0
BackgroundSelectHilite = 7
[TRM TBP]
minID = 1
maxID = 31
[INTERBYTE TIMEOUT]
ibto600 = 44032
ibto1200 = 22272
ibto2400 = 11264
ibto4800 = 5632
ibto9600 = 2752
ibto19200 = 1536
ibto38400 = 768
ibto57600 = 512
ibto115200 = 256

[RS232]
mcr_def = 11
ctrl_offset = 4
on_mask = 0
on_enable = 0
off_mask = 0
off_enable = 0

[RS422/RS485]
mcr_def = 11
ctrl_offset = 4
on_mask = 7
on_enable = 3
off_mask = 7
off_enable = 4

The TSM.INI file is divided into specific regions of configuration data by header keywords. These must always be bounded by square brackets, for example: ***[keyword]***. Currently defined header keywords are ***TRM Setup***, ***TRM TBP*** , ***TSM Colors INTERBYTE_TIMEOUT, RS232 and RS422/RS485***. For details of the last three keyword groups consult Appendix C

Under each header keyword, are item keywords in the form ***keyword = value***. It is only permitted to modify the values, and not the keywords.

TRM Setup keywords:

SerialNr =

The software serial number as entered from the diskette label during the installation process. Do **not** modify this number.

PersonalKey =

The personal key as entered from the diskette label during the installation process. Do **not** modify this number.

MousePort =

Defines which COM port (*1 - 4*) to exclude during Automatic Configuration because it is already connected to a mouse or other serial device. No value or *0* means all COM ports will be checked.

TempPath =

Directory where temporary files are created to log transponder IDs during the reading operations. May be any valid DOS path on the installed system. The temporary files are deleted when the program is quit.

Editor =

Selects the text editor to use from TRM for editing transponder ID files. The value is the command used to start the editor under DOS. If no other editor is installed, the DOS editor *EDIT* is available under MS-DOS 5.0 and greater.

BaseIsHex =

Selects the startup number base. Value *0* sets this to Decimal; value *1* to Hexadecimal.

ComPort =

Manual Configuration serial port setting. Used to define which COM port is used. Allowed values *1, 2, 3, 4*.

Baudrate =

Manual Configuration serial port setting. Used to define the Baud rate. Allowed values *300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200*.

DataBits =

Manual Configuration serial port setting. Used to define the number of data bits. Allowed values *7, 8*.

StopBits =

Manual Configuration serial port setting. Used to define the number of stop bits. Allowed values *1, 2*.

Parity =

Manual Configuration serial port setting. Used to define the parity setting. Allowed values *EVEN, ODD, NONE*.

Hardware =

Interface type. Used to define the type of interface being used. Allowed values RS232, RS422, RS485.

ErrorCheck =

Cyclic Redundancy Check type. Used to define whether an the standard CCITT-CRC is used for error checking, or a simpler check using XORs. The latter may be used by the reader where it needs to communicate with a controller such as a PLC which cannot easily perform the CRC. Allowed values XOR-BCC ,CCITT-CRC .

Alias =

The Alias entry allows non-standard reader software version strings to be recognised by TRM as if they were a standard or default reader version. This is useful for developers of custom software for the Series 2000 or S2510 Reader who wish to test existing functions with TRM, but have assigned their own custom version string to the new software. Please refer to Appendix B for more details and an example.

Antenna =

Default antenna to use on startup (only applicable on multi-antenna readers). Allowed values *1, 2*.

Type =

Default transponder type to use on startup. Allowed values *RO* (Read Only), *R/W* (Read/Write), *MPT* (Multipage), SAMPT (Selective Addressable Multipage).

PageNr =

Default page number to use for Multipage or SAMPT on startup. Allowed values *1* to *17*.

minBaud =
maxBaud =

Sets the minimum and maximum baud rate for auto connect command. Allowed values are *0* to *7*

0 = 600 Baud
1 = 1200 Baud
2 = 2400 Baud
3 = 4800 Baud
4 = 9600 Baud
5 = 19200 Baud
6 = 38400 Baud
7 = 57600 Baud
8 = 115200 Baud

IDFiling =

Selects the automatic filing of all read transponder IDs to disk. *0* means no ID filing, *1* ID filing is enabled.

TSM Colors keywords:

Foreground colors may be assigned a value from *1* to *15*. Background colors only use values from *1* to *8*.

The colors are defined as follows:

1	Black	9	Light Blue
2	Blue	10	Light Green
3	Green	11	Light Cyan
4	Cyan	12	Light Red
5	Red	13	Light Magenta
6	Magenta	14	Light Yellow
7	Brown	15	Bright White
8	White		

Foreground =

Foreground text color.

ForegroundBorder =

Foreground border color.

ForegroundSelect =

Foreground selected item color.

ForegroundHilite =

Foreground highlighted character color.

ForegroundSelectHilite =

Foreground selected highlighted character color.

Background =

Screen and window background color.

BackgroundBorder =

Background border color.

BackgroundSelect =

Background selected item color.

BackgroundHilite =

Background highlighted character color.

BackgroundSelectHilite =

Background selected highlighted character color.

TRM TBP keywords:

minID = 1
maxID = 31

Sets the minimum and maximum ID for auto connect command. Allowed values are *0* to *254*. The auto connect will only search for reader IDs within these two limits.

If the keyword values are altered to illegal values, the program will substitute preset default values. This may cause the program to run unexpectedly or not at all for the connected reader. If problems occur and the original settings have not been noted, the default settings can be returned by running the install program, INSTALL.EXE. Further setup may then be made by running the program TRM.EXE and use the ***Save Setup*** options.

Appendix B: Version String Alias

Currently the version string used by TRM to identify a valid reader software version is fixed in a table in TRM, allowing only reader software sending the exact same string to be recognized by TRM. To allow more flexibility in connecting non-standard reader software versions (i.e. a customer-generated version) an alias will be added to allow any newly-defined reader version to be recognized as an existing software version. The alias is added as an entry in the file TSM.INI and has the following syntax:

Alias1=*<Alias_String>,(<Target_String>* || *<DEFAULT_CONSTANT >)*

or

Alias2=*<Alias_String>,(<Target_String>* || *<DEFAULT_CONSTANT >)*

Where Alias_String is the new string to be recognized
Target_String is the exact string as sent by the reader version to be aliased.
DEFAULT_CONSTANT can be default_ASCII or default_TBP. In this case the aliased version is the most recent ASCII or TBP software version.

For example:

Alias1=S2000 - MYVER 1.0,S2000 - REV 1.30

or

Alias1=S2000 - MYVER 1.0,Default_ASCII

Both of these examples would cause TRM to recognize the custom string for MYVER 1.0 as if it were the current (version 1.30) reader version.

Either Alias1 or Alias2, or both, may be defined. Two separate aliases are allowed to permit aliasing of both the ASCII and the TBP versions of the reader software. The strings supplied must be exactly the same as the strings used in the reader software, and no extra white spaces must be introduced.

If one of the DEFAULT_CONSTANT values is given instead of a target string, the current (newest) reader software version will be aliased. This can be used to easily alias to the current software version even if the exact string is not known. The constants default_ascii and default_tbp are case-independent.

If an alias is given for a particular version string, that alias will be used even if the version is a normally recognized version. This allows maximum flexibility for use of aliasing.

Caution must be taken in assigning an alias to a new reader software version to ensure that the new software supports the functions of the aliased version, and that no conflicts occur.

Appendix C: Settings for Communication Cards

Parameters under the headings INTERBYTE_TIMEOUT, RS232, and RS422/485 in TSM.INI are used to customize the communications driver in TRM.

Most RS422 and RS485 interface cards and converters (RS232 - RS422/485) will function with the default settings supplied. If a particular interface card does not work with these settings, the required settings should be altered in the file TSM.INI in consultation with the interface card manual.

Depending on the setting for "Hardware Interface" in TRM setup (RS232, RS422, RS485), the appropriate interface type keyword group is used. However, the INTERBYTE_TIMOUTs are applicable to all the interface types.

The TIRIS bus protocol driver also functions with an standard computer RS232 communication port (point-to-point connection only).

RS232 Keywords:

mcr_def =

This is the value for the Modem Control Register (MCR) of the UART. Most communication cards use the OUT2 signal of the MCR to enable the serial interrupt. For most applications, *mcr_def* should be set to 11.

Default is 11

ctr_offset =

This parameter specifies the offset value of the Transmitter Control Register to control the driver circuit of a RS422/RS485 interface) to the Com Port Base Address. Most commonly, the Transmitter Control Register is the Modem Control Register of the UART. A typical value for *ctr_offset* is 4, which specifies the MCR as the Transmitter Control Register. Please refer to the user manuals of your Plug-In Card or RS232 to RS422/RS485 converter.

Default is 4

on_mask =

This parameter specifies which bit positions of *on_enable* are used to enable the RS422/RS485 driver.

Default is 0

on_enable =

This parameter specifies the value to enable the RS422/RS485 driver.

Default is 0

off_mask =

This parameter specifies which bit positions of *off_enable* are used to disable the RS422/RS485 driver.

Default is 0

off_enable =

This parameter specifies the value to disable the RS422/RS485 driver.

Default is 0

RS422/RS485 Keywords:

mcr_def =

This is the value for the Modem Control Register (MCR) of the UART. Most communication cards use the OUT2 signal of the MCR to enable the serial interrupt. For most applications, *mcr_def* should be set to 11.

Default is 11

ctr_offset =

This parameter specifies the offset value of the Transmitter Control Register to control the driver circuit of a RS422/RS485 interface) to the Com Port Base Address. Most commonly, the Transmitter Control Register is the Modem Control Register of the UART. A typical value for *ctr_offset* is 4, which specifies the MCR as the Transmitter Control Register. Please refer to the user manuals of your Plug-In Card or RS232 to RS422/RS485 converter.

Default is 4

on_mask =

This parameter specifies which bit positions of *on_enable* are used to enable the RS422/RS485 driver.

Default is 7

on_enable =

This parameter specifies the value to enable the RS422/RS485 driver.

Default is 3

off_mask =

This parameter specifies which bit positions of *off_enable* are used to disable the RS422/RS485 driver.

Default is 7

off_enable =

This parameter specifies the value to disable the RS422/RS485 driver.

Default is 4

INTERBYTE_TIMOUT

This parameter defines the interbyte time-out for given baudrates. These values should not normally need to be changed from the supplied defaults below:

ibto600 =	44032
ibto1200 =	22272
ibto2400 =	11264
ibto4800 =	5632
ibto9600 =	2752
ibto19200 =	1536
ibto38400 =	768
ibto57600 =	512
ibto115200 =	256