TDS1000 User Manual

Contents

Chapter 1: Introducing the TDS1000

About This Users Manual

You are reading the TDS1000 (Telemetry Data Systems 1000) User's Manual, This User's manual provides information regarding the various components in the TDS1000 and how to use them. The following are major sections of this user manual.

1. **Introducing the TDS1000**

Introduces you to the TDS1000 and this User's Manual

2. **Knowing the Parts**

Gives you information on the TDS1000's components

3. **Getting Started**

Gives you information on getting started with the TDS1000.

4. **Using the TDS1000**

Gives you information on using the TDS1000's components

5. **Appendix**

Introduces you to the optional components and gives additional information.

NOTE

The actual software and operating systems installed on your TDS1000 may differ from those shown in this manual. Please accept your TDS1000 installation as being correct.

Notes for this Manual

A few notes and warnings are used throughout this guide, allowing you to complete certain tasks safely and effectively. These notes have different degrees of importance as follows:

 WARNING! Important information that must be followed for safe operation.

 IMPORTANT! Vital information that must be followed to prevent damage to data, components, or persons.

 TIP: Tips for completing tasks.

NOTE: Information for special situations.

Safety Precautions

The following safety precautions will increase the life of the TDS1000. Follow all precautions and instructions. Except as described in this manual, refer all servicing to qualified personnel.

Disconnect the AC power before cleaning the TDS1000. Wipe the TDS1000 using a clean lint free cloth dampened with a solution of nonabrasive detergent and a few drops of warm water and remove and extra moisture with a similar dry cloth

Do not clean on uneven or unstable work surfaces. Seek servicing if the case or external connectors have been damaged.

Do not place or drop objects on top of the TDS1000 and do not force any foreign objects into the TDS1000.

Do not operate the TDS1000 near explosives or during a gas leak.

Do not expose the TDS1000 to strong magnetic or electrical fields.

Do not press with excessive pressure on the display panel or close the display covers with object laying on them that may damage the screen.

Do not expose the TDS1000 to standing water or operate the TDS1000 for extensive periods of rain or spray.

Do not use the Ethernet connection when exposed to an electrical storm.

Do not leave the TDS1000 o your lap or any part of the body to prevent discomfort or injury.

SAFE TEMP: This TDS1000 should only be used for extended periods of time in environments with ambient temperatures between -20C and +60C.

INPUT RATING: Make sure that your power supply provides voltages between 96-260 VAC and 50Hz to 60Hz.

Do not carry or cover the TDS1000 when it is powered on with any materials that may reduce air circulation such as a carrying case.

Do not use strong solvents such as thinners, benzene or other chemicals on any surface of the TDS1000.

Do not use damaged power cords, accessories cables or peripherals.

 Do not throw the TDS1000 in municipal waste. This product has been carefully designed to enable proper reuse of parts and recycling. Check local regulations for disposal of electronic products.

Transportation Precautions

To prepare the TDS1000 for transport, you should turn it off and disconnect all external peripherals to prevent damage to the connectors. The hard drives head retract when the power is turned off to prevent scratching the hard disk surface during transport. Therefore you should not transport the TDS1000 while the power is still on. Close the display covers and that that these are fully closed to protect the keyboard and display panel.

CAUTION! The TDS1000's surface may become scratched if not properly cared for. Be careful not to rub or scratch the TDS1000 surfaces.

Cover Your TDS1000

A specially designed transport container is supplied with the TDS1000. This box when properly closed will protect the TDS1000 from dirt, water, shock and scratches.

Airplane Precautions

Contact the person responsible for the aircraft safety if you want to use the TDS1000 on an aircraft.

CAUTION: There are three main types of aircraft security devices: X-Ray machines (used on items placed on conveyor belts), magnetic detectors (used on people walking through security checks), and magnetic wands (hand-held devices used on people or individual items). You can send the TDS1000 through airport X-ray machines. However it is recommended that you do not send the TDS1000 through airport magnetic detectors or expose them to magnetic wands.

Preparing your TDS1000

These are only quick instructions for using your TDS1000.

Full Remote Operation

1. Connect the TDS1000 to your local Ethernet on which the controlling computer is connected.
2. Connect the mains power (110 to 240 VAC, 50 to 60 Hz) to the TDS1000.
3. Depress and release the TDS1000 power switch.
4. Wait for one minute.
5. Start the Windows preinstalled Remote Desktop Connection program on the controlling computer.
6. Use the fields provided to enter the TDS1000 computer name and the TDS1000 login password (the default password is **jdajda**).
7. You may now fully control the TDS1000 from the controlling computer as if you were directly connected to the TDS1000 with mouse, keyboard and display.

Local Operation

1. Connect a monitor to the TDS1000 using the provided HDMI to HDMI cable.
2. Connect a USB mouse and keyboard to the TDS1000, using either of the available external USB sockets.
3. Connect the mains power (110 to 240 VAC, 50 to 60 Hz) to the TDS1000.
4. Depress and release the TDS1000 power switch.
5. Wait for the TDS1000 to start.
6. If asked to do so then login to the TDS1000, the default user is **jda** and the default password is **jdajda**.

Chapter 2: Knowing the parts

Front Side

The front panel right hand door is opened by turning the key lock to the vertical position and pulling the door open.

The front door covers the main power switch, the reset switch and the DVD/CD drive access.

To power on ensure that power is applied on the rear of the TDS1000 and that the main rear panel switch is on the on position, then press and release the front panel power switch. The TDS1000 will then startup into the Windows operating system that is preinstalled.

To reset the TDS1000 press and release the red reset switch.

Below is the shown the rear panel of the TDS1000.

Channel 1 TTL/RS422 Switch

The switch that enables either TTL or RS422 for the decom channel 2.

Channel 2 TTL/RS422 Switch

The switch that enables either TTL or RS422 for the decom channel 1.

Channel 3 TTL/RS422 Switch

The switch that enables either TTL or RS422 for the decom channel 3.

Channel 4 TTL/RS422 Switch

The switch that enables either TTL or RS422 for the decom channel 4.

Rear Break Out Panels

A number of BNC and differential BNC female sockets are provided on an integrated break out panel for such functions as IRIG time input, simulator data and clock outputs, decom data and clock inputs. Their purpose and use are engraved on the break out panel cover itself.

Power Socket

The standard IEC power input socket (5A fused) supports 110 to 240VAC 50 to 60Hz mains power.

Power Switch

The power switch allows main power to be applied to the TDS1000.

USB 1 and 2

The TDS1000 supports two external USB 2.0 buses.

USB SS 1 and 2

The TDS1000 supports two external super speed USB 3.0 buses.

HDMI 1.4a 1 and 2

The TDS1000 supports dual monitor operation. The primary display should be connected to HDMI1 (the upper HDMI)

Gigabit Ethernet

The Ethernet socket supports standard Ethernet operations . This is backwards compatible to 10 MBit and 100 MBit Ethernet networks

BS 1 thru 4

These BNC sockets support the inputs to the bit syncs 1 thru 4.

Chapter 3: Getting Started

Power System

The TDS1000 is supplied with a mains power cable. Th e internal power supply is a universal voltage unit. That means that you may connect the power cord to any 110-240 VAC and 50Hz to 60Hz outlet without setting switches or using power converters. Different countries may require that an adapter be used to connect the provided European standard AC power cord to a different standard. It is always best to check what is required before bringing power adapters to another country.

IMPORTANT! Damage may occur is you use a different and incompatible power cable to the type which is delivered with the TDS1000. If there is smoke, a burning smell or extreme heat coming from the TDS1000 then urgently seek servicing.

This TDS1000 may come with either a two or three-prong plug depending on territory. If a three-prong plug is provided then you must use a grounded AC outlet or use a properly grounded adapter to ensure safe operation of the TDS1000.

WARNING: The internal power supply may become warm or hot when in use. Be sure not to cover the air inlet or outlet on the base of the TDS1000 and keep the TDS1000 away from your body.

Unplug the power cable or switch off the AC outlet to minimize power consumption when the TDS1000 is not in use.

Powering ON the TDS1000

The TDS1000 power ON message appears on the screen when you turn it ON. If necessary you may need to briefly press the input selection on your display monitor to select the HDMI video source.

If you need to run the BIOS setup to set or modify the system configuration, press [Del] upon boot up to enter the BIOS setup.

If you press [Tab] during the splash screen, standard boot information such as BIOS version will be seen.

Press [ESC] and you will be presented with a boot menu with selections to boot from available drives.

Before booting up the display may flash when the power is applied. This is part of the TDS1000's test routine and is not a problem with the display.

IMPORTANT: To protect the hard disk drive, always wait at least 5 seconds after turning OFF the TDS1000 before turning it back ON.

WARNING: Do not carry or cover the TDS1000 when it is powered on with any materials that may reduce air circulation such as a carrying case.

The Power-On Self Test (POST)

When you turn on the TDS1000, it will start to run through a series of software controlled diagnostic tests called the Power-On Self Test (POST). The software that controls the POST is installed as a permanent part of the TDS1000's architecture. The POST include s a record of the TDS1000's hardware configuration which is used to make a diagnostic test of the system. This record is created by using the BIOS setup program. If the POST detects a difference between the record and the existing hardware then it will display a message on the screen prompting you to correct the conflict by running the BIOS setup.

In all cases the record will be correct when you receive the TDS1000.

Self Monitoring and Reporting Technology

The SMART (Self Monitoring and Reporting Technology) checks the hard disks drive during POST and gives a warning message if a hard disk requires servicing.

If any critical hard disk drive warning is given during boot up then backup you data immediately and run Windows disk checking program by the following procedure, click **Start**> select **Computer**> right click a hard drive icon > choose **Properties**> click the **Tools** tab > click **Check Now**> click **Start**. You can also select "Scan… sectors" for more effective scan and repair but the process will then run slower.

IMPORTANT! If warnings are still given during boot up after running a software disk checking utility, you should take you TDS1000 for servicing as continued use may result in data loss.

Restarting or Rebooting

After making changes to your operating system, you may be prompted to restart the TDS1000. Some installation processes will provide a dialog box to allow a restart. To restart the system manually, choose **Restart**.

IMPORTANT: To protect the solid state disk drives data integrity, always wait at least 5 seconds after turning OFF the TDS1000 before turning it back ON.

Emergency Shutdown

In the extreme case that your operating system cannot properly turn OFF or restart there is an additional way to shut down your TDS1000.

Hold the power switch down until the TDS1000 switches off, the power switch may need to be held for four seconds or more.

IMPORTANT: Do not use the emergency shutdown while data is being written to the hard disk as doing so may result in loss or destruction of your data.

Thermal Power Control

There are three power control methods for controlling the TDS1000's thermal state. These power control methods are automatic and cannot be influenced by the user. The following temperature states represent the chassis temperature and are not related to the CPU.

- The fan runs at a higher speed for active cooling when the temperature reaches the safe upper limit.
- The CPU decreases speed for passive cooling when the temperature exceeds the safe upper limit.
- The system shuts down for critical cooling when the temperature continues to rise above the maximum safe upper limit.

Status Indicators

System Power

The system power central red LED indicator illuminates when the TDS1000 is ON and the system is powered up and operating normally..

Signal Source Indicators

Signal source indicators are fitted in the break out field on the TDS1000. These indicate the signal types for all the available PCM decommutators that can be fitted into the TDS1000. These will indicate yellow for TTL signal type selection and red for RS422 signal type selection.

Chapter 4: Using the TDS1000

Hard Disk Drive

Solid State Disk drives have higher capabilities and operate much faster speeds than normal rotary drives. The TDS1000 comes with a non-removable SATA Solid State Disk drive. Current drives support SMART (Self Monitoring and Reporting Technology) to detect disk errors or failures before they occur.

IMPORTANT: Poor handling of the TDS1000 may damage the Solid State Disk. Handle the TDS1000 carefully and keep it away from static electricity and strong vibrations or impacts. The disk is shock mounted and is a rugged component but still can be damaged if the TDS1000 is severely mishandled.

IMPORTANT: When replacing or upgrading the Solid State Disk drive always check with an authorized service center to check compatibility.

WARNING! Disconnect all the connected peripherals and the main power cord before removing the disk.

Memory (RAM)

The TDS1000 is fitted with 8GBytes of RAM. Additional RAM will not increase the application performance with the operating system installed and so it is generally not necessary to change the RAM configuration. If however you do wish to install new memory you must then refer the TDS1000 to an authorized service center.

The BIOS automatically detects the amount of memory in the system and configures CMOS accordingly during the POST (Power-On Self Test) process. There is no hardware or software (including BIOS) setup required after the memory is installed.

WARNING! Disconnect all the connected peripherals and the main power cord before installing or removing any memory

Network Connection

The standard computer interfaces such as Ethernet and USB may be accessed from the TDS1000 front panel.

Connect a network cable with RJ-45 connectors on each end to the network port on the TDS1000 and the other end to a switch or hub. For 100 BASE-TX / 1000 BASE-T speeds your network cable must be category 5 or better with twisted pair wiring, if you plan on running the interface at a 100 BASE-TX / 1000 BASE-T hub (not a BASE-T4 hub).

For 10Base-T you may use category 3, 4 or 5 twisted pair wiring. 10 / 100 Mbps Full-Duplex is also supported by the TDS1000 but requires connection to a network switching bud with "duplex" enabled. The software default is to use the fastest setting available so normally no user intervention is required.

1000BASE-T (or Gigabit) is supported on most TDS1000 models

Twisted-Pair Cable

The cable used to connect the Ethernet card to a host (generally a Hub or Switch) is called a straight through Twisted Pair Ethernet (TPE). The end connectors are called RJ-45 connectors, which are not compatible with RJ-11 telephone connectors. If connecting two computers together without a hub in between a cross over LAN cable will be required only if one or both ends of the link does not support auto-crossover which is standard on GigaNet interfaces.

Specifications

Bit Sync Characteristics

Data Polarity	Normal or Inverted
Input Bit Rate	100 bps to 40 Mbps (max)
Input Code Types	NRZ-L/M/S, BIO-L/M/S, DM-M/S, RNRZ/RNRZR-9/11/15/17/23
Output Code Type	NRZ-L BNC & Internal
Loop Bandwidth	Digital Fully Automatic
Acquisition Range	Digital Fully Automatic
Tracking Range	Digital Fully Automatic
Bit Error Probability	Within 1db to Theoretical
Loop Bandwidth	Automatic Full Digital
Tracking Range	Automatic Full Digital
Clock Format	0 Degree and 180 Degree

PCM Data Characteristics

IRIG 106 Types:	Chapter 4, Chapter 8, Chapter 10
Bit Rate:	100 bps to >32 Mbps
Serial Input	RS422 (Differential Dual Pin BNC) & TTL (0-5V 50 Ohm BNC)
Serial Output	RS422 (Differential Dual Pin BNC) & TTL (0-5V 50 Ohm BNC)
Time Sources	IRIG A, B and G (50 Ohm BNC)
Time Resolution	Internal 100 nSec
Time Accuracy	Better than 1 uSec
Frame & SubFrame	Optionally extended to Word/Frame >8912, Frame/Format >512

Power Requirements

Power Supply:	100 to 240 VAC, 50 to 60Hz
Maximum Power:	3A in normal operation (5A fuse fitted)

Mechanical

Material:	CNC Machined Chemically Coated Aluminum
Dimensions:	630mm L x 482mm W x 225mm H
Weight:	13.5 kg
Bit Sync Inputs:	BNC Female
Data Connectors:	BNC & Differential Dual Pin BNC
DC Supply, On/Off:	Sealed Push Switch

Environmental

Temperature (Operating): -20°C to +65°C

Acceleration: 100 g, 3 Axes

Altitude: 50,000 m

Humidity: Up to 95% @ Any Temperature Forming Frost or Condensation

Environmental

Temperature (Operating): -20°C to +65°C

Appendix

Optional Accessories

The following optional items may compliment your TDS1000

USB Hub

Attached to an optional USB hub will increase your available USB ports and allow you to quickly connect or disconnect many USB peripherals through a single cable.

USB Flash Memory Disk

A USB flash memory disk is an optional item that can provide storage up to several hundred gigabytes with high transfer speeds and great durability.

WARNING! To prevent systems failures, use Windows "Safely Remove Hardware" on the taskbar before disconnecting any external USB storage devices.

USB Keyboard and Mouse

Attaching an optional external USB keyboard may allow data to be entered in an office environment. Attaching an optional external USB mouse may make Window navigation more comfortable. Both the external USB keyboard and mouse will work simultaneously with the TDS1000 built in devices.

Printer Connection

One or more optional USB printers can be simultaneously used on any USB port or USB hub.

Operating System and Software

This TDS1000 is provided with a preinstalled Microsoft Windows 7 operating system. The stability and compatibility of other operating systems cannot be guaranteed or supported.

Support Software

The TDS1000 comes with support disks that provide operating system, BIOS, drivers and applications to enable the hardware features, extend functionality, and help manage your TDS1000, or add functionality not provided by the native operating system. If updates or replacement of the support disk is necessary contact your dealer for details of how to obtain undated individual drivers and utilities.

The support disks contain all drivers, utilities and software for the preinstalled operating system.

It is recommended that the user generates a suitable recovery disk to allow the TDS1000 to be recovered in case of a damaged hard disk. You may contact your TDS1000 supplier is you require more detail for such a solution.

Some of the TDS1000 components and features may not work until the device drivers and utilities are installed.

Common Problems and Solutions

Hardware Problem – Optical Disc

An external optical disc drive is not able to read or write discs when the external optical disc drive is connected.

1. Update the BIOS to the latest version and try again
2. If updating the BIOS does not help, try better quality discs and try again.
3. If the problem still persists then contact you dealer and ask an engineer for assistance.

Unknown Reason – System Unstable

1. Remove any upgraded parts (RAM, HDD) is they were installed after purchase
2. If this does not resolve the issue try MS System Restore to an earlier data.
3. If problems still persist try restoring your system using the DVD.
4. If the problem still persists then contact you dealer and ask an engineer for assistance.

IMPORTANT! You must backup all your data to another location before recovering.

Mechanical Problem – FAN / Thermal

Why is the system temperature high?

1. Make sure that the FAN works when the CPU temperature is high and check that there is air flow through the air vents on the base of the unit.
2. If you have many applications running (see taskbar) then close them to decrease the system load.
3. The problem may be caused by some viruses try using anti-virus software to detect and remove them,
4. If none of the above helps try restoring your system using the provided DVD's.

IMPORTANT! You must backup all your data to another location before recovering.

Unknown Reason – Blue screen with white text

A blue screen with white test appears after system boot up.

1. Remove additional memory if additional memory was installed after purchase. Power OFF and remove the additional memory and then power ON to see if the problem is due to incompatible memory.
2. Uninstall software applications. If you have installed software applications recently then they may not be compatible with your TDS1000. Try to uninstall them in Windows Safe Mode.
3. Check your system for viruses
4. Update the BIOS to the latest version with the BIOS update utility supplied with your TDS1000. These utilities and BIOS files can be downloaded from the internet.
5. If the problem still cannot be solved, use a recovery process to reinstall your entire system.

6. If the problem still persists then contact you dealer and ask an engineer for assistance.

WARNING! Ensure that your TDS1000 does not lose power during the BIOS flashing process.

IMPORTANT! You must backup all your data to another location before recovering.

CAUTION! Do not connect to the internet if your anti-virus protection has been disabled or the network firewall is not active.

DVD-ROM Drive Information

The TDS1000 is delivered with an external DVD drive. In order to view DVD titles you must install your own DVD viewer software. The DVD drive allows for the use of both CD and DVD discs.

Regional Playback Information

Playback of DVD movie titles involves decoding MPEG2 video, digital AC3 audio and decryption of CSS protected content. CSS is a name given to a content protection scheme adopted by the motion picture industry to satisfy a need to protect against unlawful content duplication.

Although the design rules imposed on CSS licensors are many, one rule that is most relevant is playback restrictions on regionalized content. In order to facilitate geographically staggered movie releases, DVD video titles are released for specific geographical regions as defined in "Region Definitions" that can be found on the internet. Copyright laws require that all DVD movies be limited to a particular region (usually coded to the region at which it is sold). While DVD movie content may be released for multiple regions, CSS design rules require that any system capable of playing CSS encrypted content must only be capable of playing one region.

The region setting may be changed up to five times using the viewer software, then it can only play DVD movies for the last region changed. Changing the region code after that will require factory resetting which is not covered by warranty. If resetting is desired then shipping and resetting costs will be at the expense of the user.

Declarations and Safety Statements

Federal Communications Commission Statement

The device complies with FCC Rules Part 15. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The use of a shielded type power cable is required in order to meet FCC emission limits and to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

(Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.)

Declaration of Conformity (R&TTE directive 1999/5/EC)

The following items were completed and are considered relevant and sufficient:

- Essential requirements as in [Article 3]
- Protection requirement for health and safety as in [Article 3.1a]
- Testing for electric safety according to [EN 60950]
- Protection requirement for electromagnetic compatibility in [Article 3.1b]
- Testing for electromagnetic compatibility in [EN 301 489-1] & [EN 301 487-17]
- Effective use of the radio spectrum as in [Article 3.2]
- Radio test suites according to [EN 300 382-2]

CE Marking

CE Marking for devices without wireless LAN/Bluetooth

The shipped version of this device complies with the requirement of the EEC directives 2004/108/EC "Electromagnetic compatibility" and 2006/95/EC "Low voltage directive".

IC Radiation Exposure Statement for Canada

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. To maintain compliance with IC RF exposure compliance requirement, please avoid direct contact to the antenna connections during data transmission. End users must follow the specific operating instructions for satisfying RF exposure compliance.

Operation is subject to the following conditions:

- This device may not cause interference and
- This device must accept any interference, including interference that may cause undesirable operation of the device.

To prevent radio interference to the licensed service (i.e. co-channel Mobile Satellite systems) this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Optical Drive Safety Information

Laser Safety Information

External optical drives sold with this TDS1000 contain a CLASS 1 LASER PRODUCT. Laser classifications can be found in the glossary at the end of that products user's manual

 WARNING! Making adjustments or performing procedures other than those specified in the user's manual may result in hazardous laser exposure. Do not attempt to disassemble the optical drive. For your safety, have the optical drive serviced only by an authorized service provider.

Service warning label

 CAUTION: Invisible laser radiation when open. Do not stare into the beam or view directly with optical instruments.

CDRH Regulations

The center for Devices and Radiological Health (CDRH) of the U>S> Food and Drug Administration implemented regulations for laser products on August 2. 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

WARNING! Use of controls or adjustments or performance of procedures other than those specified herein or in the laser product installation guide may result in hazardous radiation exposure.

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3. Special, incidental, or indirect damages, or for any economic consequential damages (including lost profits or savings, even if JDA or its agents is informed of this possibility.

Service and Support

Please contact the agent from who you purchased the TDS1000 or JDA Systems directly. Contact details for JDA are available on their website http://www.jda-tele.com