TD30

User Manual

ENGLISH

Rev 1.4

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Portable Tan Delta Measurement System

NOTE:

The information presented in this instruction manual is believed to be accurate and correct for the intended use of this product. Should this instrument be used for other applications and purposes not covered herein, please contact HV Diagnostics to validate its suitability. This manual, all of its contents and the instruments specifications are subject to change without notice.

Space to note the used communication Parameters for your TD System:

Computer Notebook ID	TD System Ser No	COM Port #	Bluetooth Hardware

Table of Contents

1 Forward

Purpose

This operating manual serves to ensure the proper and safe use of the TD test instrument.

1.1 Regarding this Document

Target User

This operating manual is designed to inform various user groups. The scope and depth of the information provided may not be appropriate for all users. However, it is important that all users familiarize themselves with this document in full. The following is a guideline indicating the most significant information as a function of the user's responsibilities.

User	Responsibilities	Focus
HVA Operator	• To connect the equipment • To carry out manual or pre-programmed test sequence • To verify validity of HVA application • To verify validity of TD application • To adjust instrument settings • To program automatic test sequences in accordance with particular testing standards	**All** Sections Particular focus on all **safety** messages
Procurement, Management	• To assure that the workplace is safe and has all required equipment • To assure that HVA and TD operators are qualified technicians • To assure that operators fulfil their responsibilities	Particular focus on **safety** messages and information regarding **general** product description.

1.2 Documentation Conventions

The following explain the **symbols**, and **safety messages** found in this document. The employment of safety symbols and signal words are according to the American National Standards Institute standard ANSI Z535.6 "Product Safety Signs and Labels".

Safety Messages

Danger

DANGER

Indicates a hazardous situation which if not avoided will result in death or serious injury

Warning

WARNING

Indicates a hazardous situation which if not avoided could result in death or serious injury.

Caution

CAUTION

Indicates a hazardous situation which if not avoided could result in minor or moderate injury.

Notice

NOTICE

Indicates suggested practices to protect equipment and property.

Symbols

Yellow triangle, framed in black: Used to indicate a potential hazard.
Only used in conjunction with description of the possible hazard!
Detailed symbol may correspond to this specific hazard.

Red outlined circle with red diagonal line: Used to indicate forbidden practices.
The described handling practice must not be carried out!

Blue circle with white exclamation mark: Used to indicate recommended precautionary measures or a situation that can lead to property damage.

1.3 Legal Considerations

Warranty

HV Diagnostics provides a one-year warranty from the original purchase date of instrument for all necessary parts and labor. This warranty is void in the event of abuse, incorrect operation or use, unauthorized modification or repairs, or failure to perform the specified maintenance as indicated in this operation manual. This warranty does not include normal consumable items such as lamps, paper rolls, printer ribbons, batteries or other auxiliary items.

This warranty and our liability are limited to replacing or repairing defective equipment, at our discretion. Equipment that is returned to HV Diagnostics must be packed in original packaging. All shipped items must be prepaid and insured. No other warranties are expressed or implied.

Contact Information

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Your opinion matters!

Your comments and suggestions are of value. We are dedicated to supporting your needs. Offering you optimal documentation is part of our promise of quality.

Improvement suggestions regarding this manual may be sent to:

sales@hvdiagnostics.com

Thank you for your feedback!

2 Safety

Safety is **priority**! Respect all **safety information**; only use the TD for **appropriate applications** and ensure that operators possess the required **operator qualifications.**

2.1 General Safety

NOTICE

Operation Manual

Before carrying out any high voltage test with this instrument, read this Operating Manual in its entirety.

2.2 Work Safety

DANGER

Electric Shock Hazard

Never assume that equipment is safe to handle without using the necessary safety equipment and grounding procedures.

- All procedures must comply with local safety regulations
- Always treat exposed connectors and conductors as potential electric shock hazards. All cables and connectors must be inspected for damage before use. Damaged equipment must not be used.
- All equipment to be high potential tested must be de-energized and properly isolated from all power sources. All equipment grounds must remain in place.
- DUT must be grounded, de-energized and isolated from all power sources. DUT must be discharged and grounded before disconnecting the test lead.
- All auxiliary electrical apparatus such as switchgear, surge arresters etc. must be isolated from the test power source and the DUT.
- Ground connections must be made first and removed last!
- Avoid testing alone. In the event of an emergency another person's presence may be essential.
- The visual signals of the TD30 are designed to be easily distinguished even under bright sunlight to avoid incorrect readings. Always keep at least 6 feet / 2 meters distance when looking directly at the LED signals. Avoid long direct exposure of eyes to the signals especially under dark conditions.

The LED signal colors on the TD system indicate a TD value / range or equipment status condition. These LED lights signals in no way indicate the presence or absence of high voltage and the TD30 should be considered energized at all times when connected to a potential voltage source like a HVA test system.

3 Introduction

The TD30 model is an easy to use, single piece, Digital Signal Processor based, field portable, fully automatic VLF (Very Low Frequency) high voltage measurement instrument developed for the high potential measuring of the insulation dielectrics of various types of electrical apparatus.

4 Features

- Lightweight, portable, battery powered unit
- Solid state air insulated design
- Suitable for use with the HVA30 VLF test systems.
- Test results are easily stored via Notebook Computer or PocketPC via wireless Bluetooth® connection.
- Supplied complete with TD communication and analysis software – TD Control Center.
- Real-time display of actual output waveform.
- Power Save (Sleep) function (1 hour of inactivity), automatic wakeup on reapplication of high voltage. One-Click reconnect in ControlCenter after Sleep

5 Applications

The **TD30** provides the testing and commissioning engineer/technician with a versatile high voltage tan delta measuring system suitable for testing medium voltage electrical insulation systems such as cables (including: XLPE, PE, EPR, PILC, etc.), capacitors, switchgear, transformers, rotating machines, insulators and bushings.

Tan Delta testing enables the cable test engineer to detect insulation defects before the cable fails in service. The **TD30** is a versatile tan delta measuring system that is directly connected to the HVA series of VLF test systems from HV Diagnostics. The tan delta test results of the test object can now be easily measured and recorded and the results stored on a standard PC or Laptop for analysis, trending or quality control. This enables the cable engineer to now make tan delta testing a routine maintenance test.

The **TD30** is a battery powered system that is directly connected to the HVA30 series of VLF test systems. Standard “C” size alkaline or rechargeable battery cells that are commonly available will last up to 10 hours of continuous operation.
The **TD30** is supplied with 30 feet /10 meters of terminated output cable to plug directly into the HVA30 test system and is supplied complete with operating software which gives a complete picture of the tan delta measurement together with a real time display of the output voltage and current. The data transmission to standard notebook PC or PDA that is **Bluetooth®** enabled**,** thus eliminating a direct connection between the TD30 and the data collection device.

6 General Description

6.1 Technical Specifications*

Characteristic	TD30
Supply Power	2 C-Size Alkaline or NiMH Rechargeable Batteries Operating Time Alkaline Batteries: min. 10 hours Operating Time Rechargeable Battery: min 5 hours Operating Time means uninterrupted use under full load. The TD system incorporates an automatic power shutdown mode during extended periods of inactivity which will further extend the battery life.
Operating Voltage **Voltage Measurement**	1 – 24 kVrms Resolution 100 Vrms Accuracy 0.5% of reading
Operating Current **Current Measurement**	0.001mA - 14 mA rms Resolution 1 µArms Accuracy 1% of reading
Operating Frequency	0.1 Hz
Tan Delta Measurement	0.1 E-3 to 1000 E-3 Resolution 0.1 E-3 Accuracy: Load > 15nF and < 500nF: +/-0.2 E-3 Accuracy: Load < 15nF and > 500nF: +/-0.5 E-3
Load Capability Limit	Minimum Load: 5nF
Computer Interface	Bluetooth® Class 1 max. Transmission Power 12dB @ range 45 ft (15 meters) indoor fully Bluetooth® SIG™ certified communication
HV Cable Test Lead	Standard is 30 ft (10 m) with direct plug interface to HVA30 Series of HV Test Generators – other lengths are available.
Operating Temperature	20 to 113°F / -5 to 45°C
Storage Temperature	-13 to 155°F / -25 to 70°C
Relative Humidity	0-80% non-condensing.
Weight	11 lbs / 5 kg
Dimensions	Length x Diameter: 11” x 3” / 28 cm x 8 cm

*Technical Specifications are subject to change. HV Diagnostics reserves the right to modify values in accordance with future HVA development.

6.2 Materials

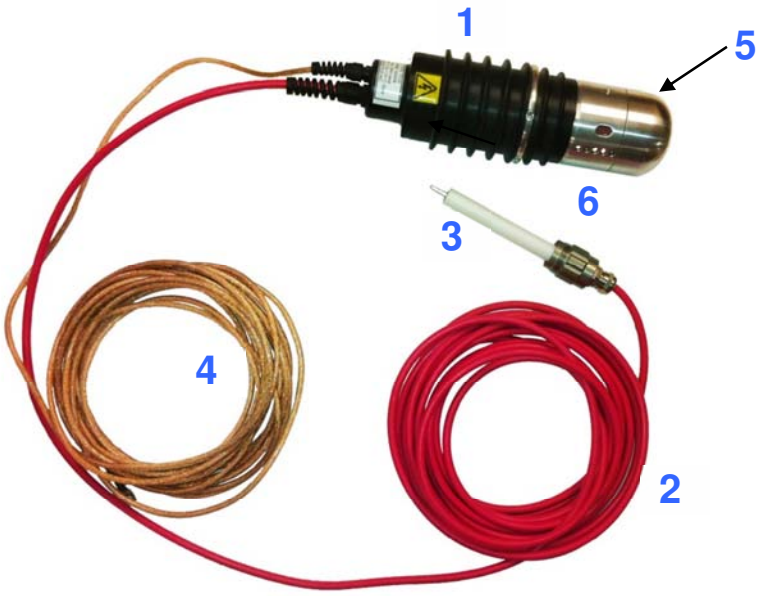
Shipment Content

Items included upon delivery of the HVA are listed below. The * marking specifies items that are country specific. For inquiries, please contact HV Diagnostics. For inquiries, please contact HV Diagnostics.

Part No.	Item	Description	Qty
700 003	TD30 Tan-Delta System 24 kVrms With TD stand		1
700 086	HV Protective Cap		1
700 062	Red Jumper Cable 36“/100cm		1
700 053	BlueTooth Adapter		1
700 050	Corona Protection Shield; 2 parts		1
	USB Stick Flash Drive HV Diagnostics		1
	Battery Charger		1
	AC Power Adapter for Battery Charger* DC Power Adapter for Battery Charger		1* 1

	C Batteries 1.5 V		4
	Battery Cap		2
	Hooks		1
	TD head inserts		3
	Alligator Clip		1
	TD30 Manual		1
	TD Software: TD Control Center (On USB Flash Drive)		1

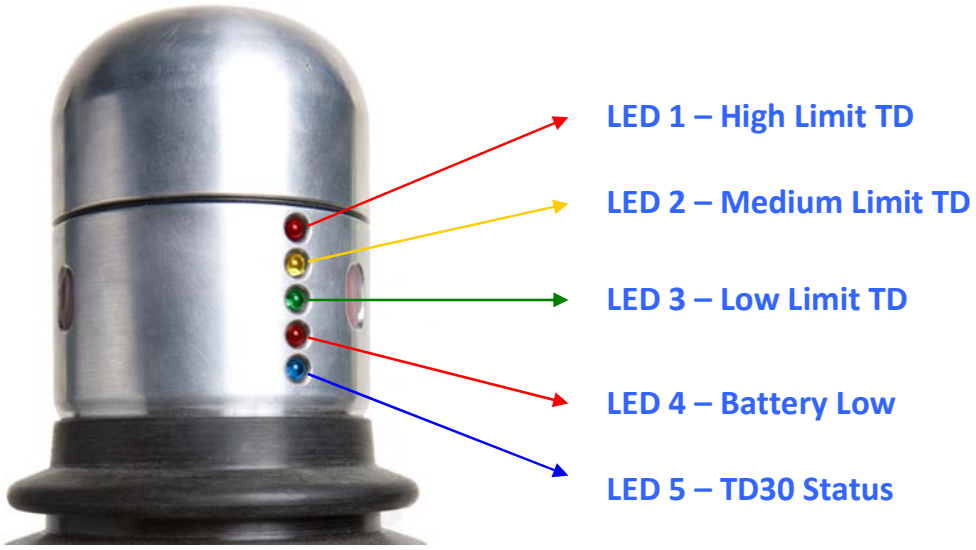
7 Hardware Description



Pos.	Item	Description
1	TD System Housing	The TD System housing/enclosure. Note the TD30 will assume a potentially dangerous high potential / voltage during testing and measurement. Always keep the housing isolated and clear of any ground during testing. Depending on the application, the 3-Pod “Sputnik” Stand which is supplied can be used to ensure proper isolation.
2	High Voltage Cable	High Voltage connection cable that links the TD30 to the HVA generator.
3	High Voltage Plug TD30	Plug directly into HVA30 HV output plug socket.
4	Ground/Earth Cable	Ground connection for load / station ground. Always connect this cable to a station ground. Do not use this cable to “ground” the Device Under Test without a suitable connection to a safe station / earth ground.
5	Tan Delta Head	Tan Delta Head covers the main ON/OFF switch and the battery housing. This head also incorporates an 8mm metric thread, which assists in providing a number of different connection options to the DUT. Unscrew head cap section to remove from the rest of the housing to turn ON/OFF the system or to replace the batteries. To re-install the head cap section, carefully screw on the cap, taking care not to cross thread the connection.
6	LED and Bluetooth® RF	5 LEDs showing operation status information. Do not cover this area.

The Head of the TD30 system with the Cap removed showing the Battery compartment and the ON / OFF switch.

Pos.	Item	Description
7	TD system control	By removing the Tan Delta head cap the main switch and the battery housing can be accessed.
8	Main Switch	Switch for powering up or shutting down the TD system. It is advisable to turn off the system to conserve battery life if the system is not planned to be used for an extended period of time. The TD system incorporates an automatic power save sleep mode, which shuts down the system after no voltage (<1kV) has being sensed for 60 minutes or more. In this mode the main switch has to be set to 0 (off) for about 2 minutes and then on again to wake up the system manually, or you can reapply voltage with the HVA which will also wake up the unit.
9	Battery Compartment	Unscrew the cover of the battery compartment to replace or install batteries. 2 of C-Size 1.5V batteries are required. Insert the batteries with the + positive upwards (towards the operator) See Battery Cover for polarity marking if in doubt.



Pos.	Item	Description
LED 1	Signal High TD (RED)	A flashing signal here indicates a TD level that is higher than the HIGH TD setting. If setup correctly, this will normally indicate a poor TD result. Flashing will occur simultaneously with the status LED signal. The TD HIGH limit can be set using the TD ControlCenter PC Software.
LED 2	Signal Medium TD (YELLOW)	A flashing signal here indicates a TD level that is lower than the HIGH limit and higher than the LOW limit. If setup correctly, this will normally indicate a mediocre (medium) condition. The limits of the TD value can be set using the TD ControlCenter PC Software.
LED 3	Signal Low TD (GREEN)	A flashing signal here indicates a TD level that is lower than the LOW limit. If setup correctly, this will normally indicate a good TD result. The limit of the TD value can be set using the TD ControlCenter PC Software.
LED 4	Signal Battery Low (RED)	Battery Low signal. Permanently ON if battery voltage drops below critical limit. In battery condition is OK then this light will not be ON.
LED 5	Signal Status (BLUE)	Flashing status signal showing active operation of the system.

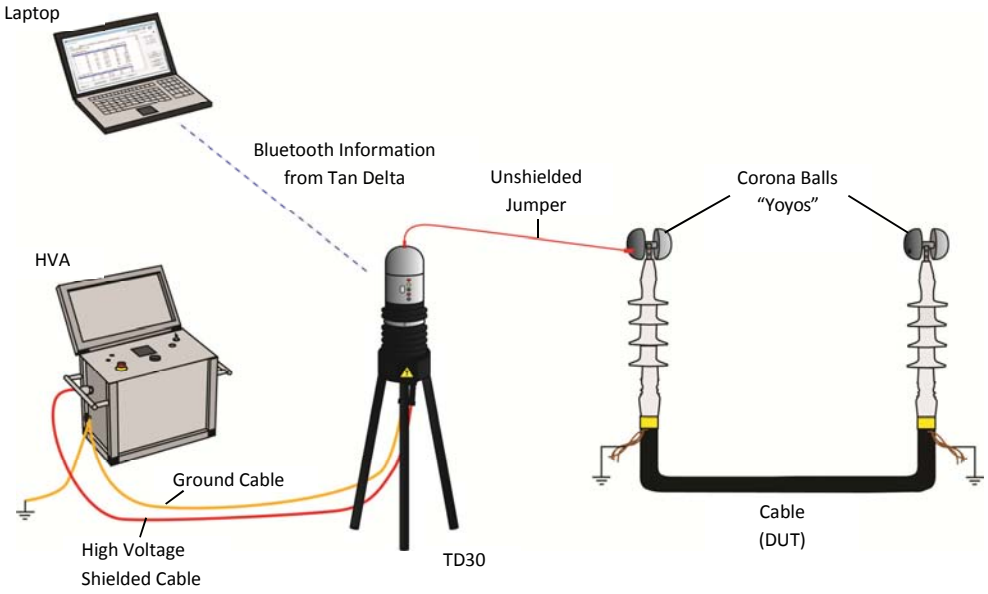
LED Test during Startup

After Power On and during system startup/wake mode the TD unit performs a LED test to make sure that all of the LED signals work and performs a quick self check

8 Connecting up the TD30 Instrument

Safe operation requires strict adherence to the recommended grounding procedures. The TD measurement system hook-up to a cable or other electrical apparatus requires three connections. It is important that these connections are made correctly, securely and in the correct sequence. The TD30 is a measurement device and it and the DUT (Device under Test) are energized by the HVA VLF high voltage power source. The TD30 does not itself generate any High Voltage, but it does operate at the voltage applied to it by the HVA HV power supply. Therefore, always treat the TD30 as being at the same voltage potential as the HVA30 power supply "feeding" it. In addition, make sure that all safety precautions and requirements are adhered to for the HVA30 test instrument – see HVA30 instruction manual.

Connection Diagram



The **Ground Cable** of the TD30 should be connected to the station ground (or to the HVA as long as the HVA is grounded). In the case of a cable, this can be the concentric neutral / ground shield / ground wire. The cable ground must be connected to the station ground for testing purposes and SHOULD NOT be isolated from ground.

The **HV Test Lead** is a coaxial conductor made up of the center high voltage conductor and an outside Shield Return that should remain at ground potential. The return shield is internally connected to ground in the HVA via this HV plug and a separately grounded connection inside of the TD system. Connect the HV Test lead of the TD30 to the HVA test instrument by screwing in the HV plug. Make sure the plug is securely screwed into the HV socket and then connect the TD30 system to the DUT using one of the versatile connectors. The connection of the TD30 system to the DUT should be the last connection made before a test is commenced and it should be the first one removed after a test has been performed and it should be independently verified that there is no longer voltage present at the TD30.

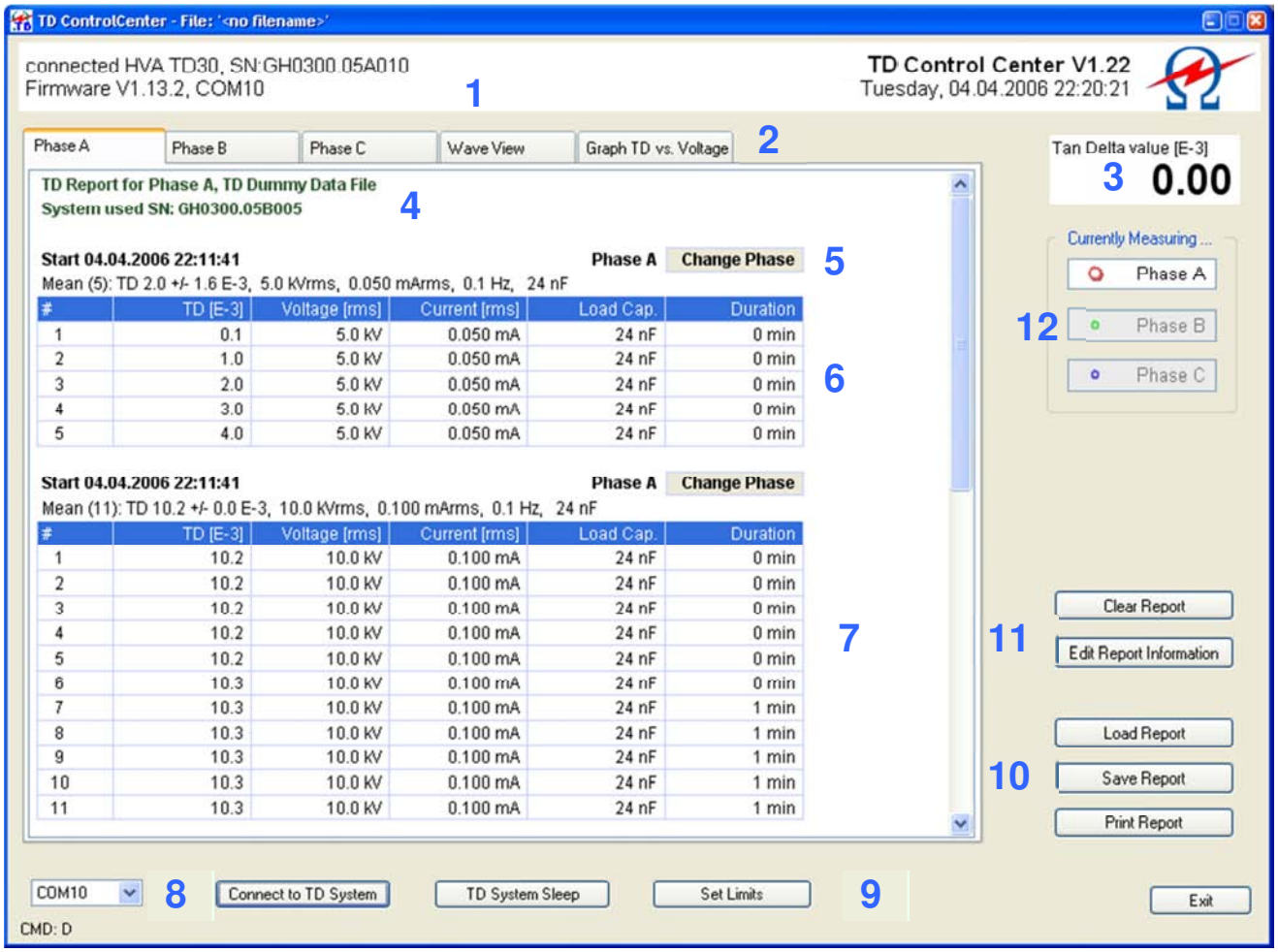
9 Software TD ControlCenter

The TD system is delivered with a set of Windows based software tools that are packaged into a software package called the TD ControlCenter. This software connects, records, analyses and reports the test results from the TD30 test instrument.

Before doing any TD measurements, please make sure the PC or Notebook that you are using is correctly setup and configured for Bluetooth® communication and has the necessary hardware installed. A Bluetooth dongle is supplied with the TD system and this can be installed by the user into the USB port of a computer. However, some PC's and Handhelds come with integrated built-in Bluetooth® capability and the supplied Bluetooth® Dongle with the TD30 will normally not be required under these circumstances. In case where Bluetooth® is already available or integrated into a PC, follow the user manual for that device to correctly configure the Bluetooth® for communication purposes.
See also the "TD System Bluetooth Setup Manual"

For Bluetooth® connection setup using the supplied Bluetooth® dongle – please refer to Appendix A.

TD ControlCenter Main Screen



Description of Elements of the Main Screen:

1. System Information, Title Bar

The Title Bar shows connection status information like the serial of the TD system that is paired to the current PC, the Battery Status information if a low signal if detected. A battery Low status will also be visible on the battery status LED present on the TD30 (see above).

2. Information Selection Tabs

Use these Tabs to switch between the various information you want to view.

Phase A-C: Show detailed TD measurement information of Phase A or B or C.
If the corresponding Phase under "Currently Measured" (see element 12) is selected all new measurements will automatically be inserted under the selected tab.

Wave View: If a measurement is in progress, this tab shows a slightly delayed real-time display of the data acquired by the TD measurement system. Voltage and Current are shown. These values are not to scale. The graph is updated after each finished waveform period.

Graph TD vs. Voltage:
Graphical display of the TD test results as a function of applied voltage. The values of all three phases can be viewed and compared. The diagram is completely auto-scaling and extracts the mean TD value from the most recent voltage block for a particular phase.

3. Current TD Value

This field shows the currently measured TD value or the last value if measurement has stopped. Helpful if not in Phase-View, so the current TD value can always be observed.

4. Report Phase Detail

Each Phase Measurement Report consists of header which includes the TD30 serial number it was acquired from.

5. Report Block Header

For every detected voltage change during measurement the system automatically creates a new block in the corresponding Phase Tab. Each Block starts with a header, which gives information like the Start Time of the measurement and the updated mean values of this block. The *"Change Phase"* Button enables the user to move a selected block to another Phase or to completely remove it from the Report. This is useful if phase test data was mistakenly recorded under the incorrect phase number. This can happen if the user starts a measurement under one phase but does not change the "Currently Measured Phase Selection" (see below).

6. Report Block Measurements

This grid shows the detailed individual test measurements for each distinct voltage. Each column is described with units in the grid header row.

7. Report Block Measurements Sequence

This next set of TD test measurements at the next successive applied test voltage.

8. Communication Port Selection

During the Bluetooth communication setup on a PC, the user is advised to use a specific serial COM-Port for the *outgoing* communication port from the PC/Laptop to the corresponding active TD System.
Use this selection box to set the corresponding Port-Number. This selection is remembered and has only to be entered once for each TD System and PC pairing. If one computer is used to communicate with more than one TD System, the computer assigns each TD unit a port number. The ControlCenter shows the Serial Number of the currently connected TD System in the Title Bar.

9. TD System Management Functions

Connect to TD System

Use this button to connect to a TD System once you have selected the correct Port Number. If the communication Port is set correctly and the TD System is switched on (not in Power Save Mode) then the connection will be established within 5 seconds. The ControlCenter shows the connection status in the Title Bar.

TD System Sleep

Places the connected TD System into Power Save Mode.
This is useful if the TD30 is not going to be used for TD measurements for some extended period of time and the user wants to conserve battery life.

If the TD30 system has entered a Power Save "Sleep" Mode and you need to "reawaken" the TD30 for further TD measurements, this can be done in 2 ways depending on the users requirements. Firstly by re-applying high voltage (>1kV) from the HV Source taken the necessary safety precautions OR secondly by switching off the TD30 (main on/off switch) for about 2 minutes and then turning the TD30 back on again. Please note that it will also be necessary to re-click the "Connect to TD System" Button after this process to re-establish the communication "pairing" again.

Set Limits

Use this function to set the Limits for the 3 TD Value Range Signal LED's on the TD unit. An upper (high) and a lower (low) limit can be set if a connection is established. This in effect sets up a low (good), medium and high (poor) range of TD limits. For XLPE cables for example these TD limits can be set as follows:

TD LOW set to *1.2* (E-3)
TD High set to *2.2* (E-3).

Please note that it may be necessary to reset the TD30 system for the limits to take effect. This can be done by turning OFF and ON the main switch on the TD30. These values are stored in non-volatile memory in the TD30 until they are changed by the user again.

This function allows the TD30 system to be used as a standalone device allowing a quick and easy indication of a TD range without necessarily having a PC available.

10 Test Report File Functions – Load, Save, Print …

Use these buttons to Load, Save and Print a test report.
The Print function can also be used to create PDF document reports if a PDF Writer or a similar PDF Printer Driver is installed.

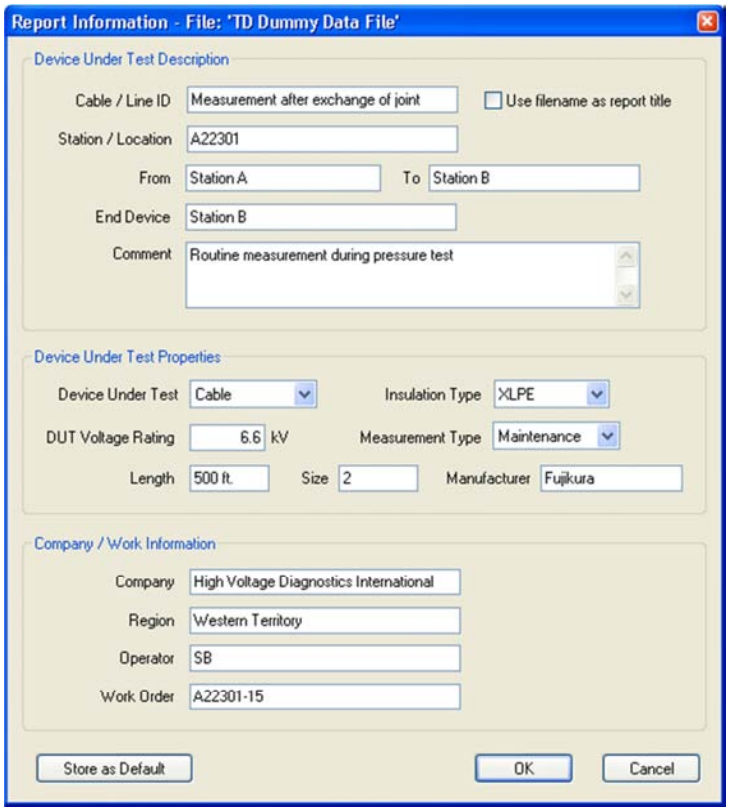
11 Report Specific Functions

Clear Report

Clears the current active report test data. Be sure to save your test data before you clear a test report. This function is useful if you want to start a new test and want to "clean" test sheet.

Edit Report Information

This Form enables the user to save detailed information with the report data.



A Cable/Line ID (if cable as DUT is selected)

The user can enter a unique identifier for the Device Under Test (DUT).
This Text will also be used (by default) as the title for this Report on the Summary and Printout.

B Store As Default

The user can store certain fields that are not likely to change from one test to another as default start-up fields. These fields are then easily and automatically inserted into any new test reports.
Fields stored: Station, Company, Region and Operator

C Use filename as report title

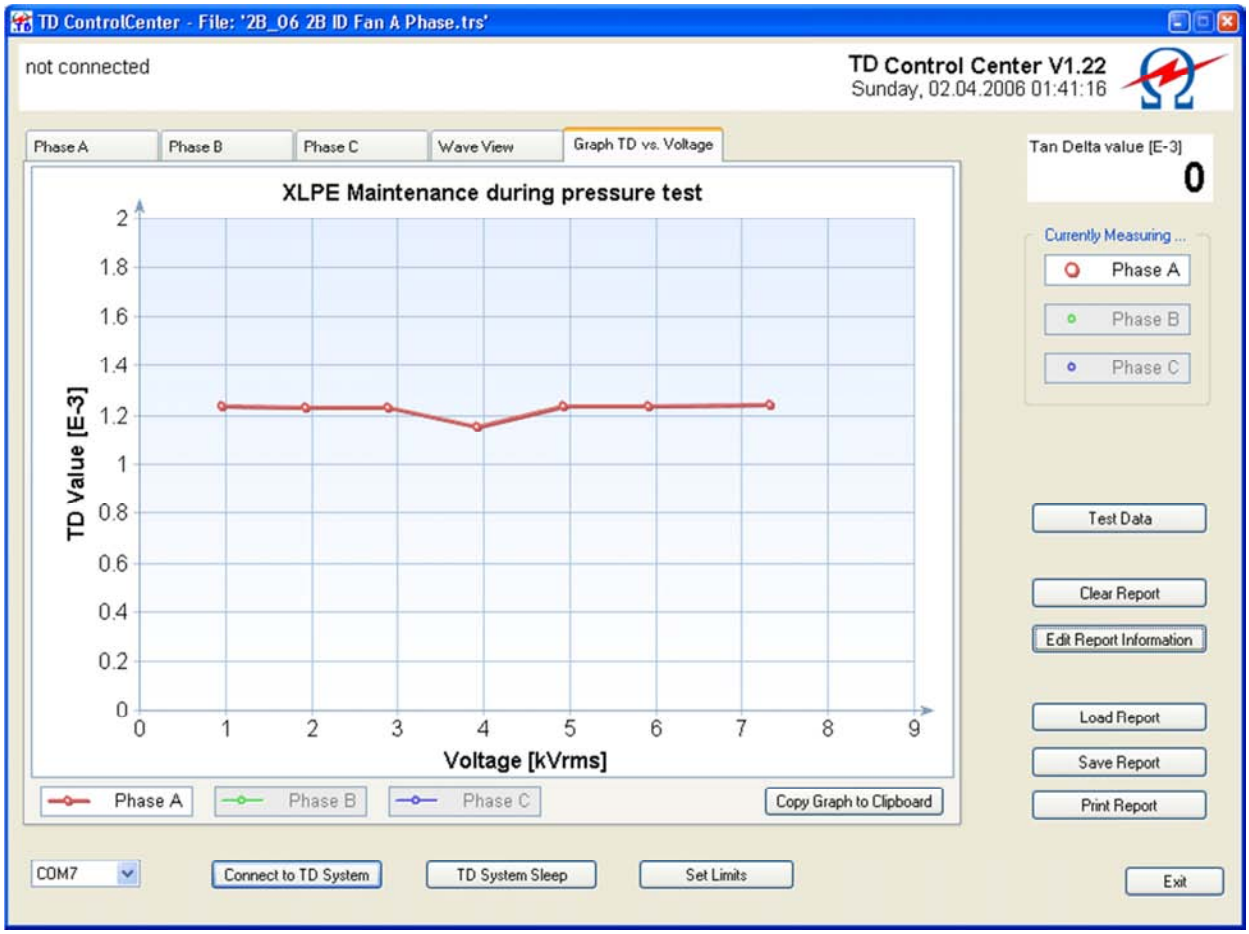
If this box is checked, the report filename will be used as the report title instead of the Cable/Line ID field.

12 Currently Measuring…… Phase Selection

The phase that is currently being tested by the TD30 needs to be selected.
All new measurement data will be put into the corresponding report phase section (tab).
If the operator changes the phase during an active TD measurement, the change will only occur when the current TD voltage block is finished to avoid splitting up of the respective TD measurement data block. The block “under the wrong” phase tab can then be moved to the correct phase section using the “Change Phase” button in the block header as a later stage.

Graphical View / Diagram

This screen provides a graphical diagram of the Mean TD measurement data versus the applied test voltage.
The values of all three phases can be viewed and compared. The graph automatically scales and draws the mean TD values for each voltage block.



1 Phase Selection for Diagram View

Toggle ON/OFF the various phases to display / block out the relevant phase information.

2 Copy Graph to Clipboard

Use this function to make a copy the currently shown TD diagram into the Windows Clipboard. It can then be easily put into many other applications (like Word, Excel) by selecting Paste in the target program.

10 Instrument Care

Cleaning

DANGER

Electric Shock Hazard!

Only clean the instrument when turned off!

After use, clean the TD head and Cable connection points.

Storage

CAUTION

Instrument Damage

Do not store the TD outdoors!

Keep the TD away from liquids!

TD should be stored indoors in the following environmental conditions:

- Temperature: -25℃ to 70℃ (-13℉ to 158℉)
- Humidity: 5-85% non-condensing

Maintenance and Repairs

NOTICE

Authorized personnel only!

Repairs and maintenance should only be performed by authorized HV Diagnostics' personnel.

One yearly inspection by authorized HV Diagnostics' personnel is recommended.

Appendix A: Software Installation Procedure 'TD ControlCenter'

A CD containing the TD Control Center Software for Windows 2000®, Windows XP®, or Windows 7® based PCs is shipped with the TD Measurement System.

Prior to installation close all running applications to avoid influence.

To install put the CD into a CD/DVD Drive – the Install Wizard appears automatically. Follow the steps as described in the Installation Wizard to perform the installation. For easy installation leave the installation path as indicated

To start the TD ControlCenter after Installation, double click the new icon on your desktop or use the new Start menu entry under the "HVA ControlCenter".

Setup does not start automatically
In some cases - depending on the settings of Windows - Setup does not start automatically.
If so follow these steps:

- Locate and double click the "My Computer" icon on the Windows Desktop
- A Window with your local Hard-Drives and CD/DVD-Drives shows up
- Double click the symbol of the drive where you have inserted the CD
- If Setup starts now, proceed as described above
- Otherwise a new window has opened and shows the content of the CD
- Locate and point to the folder "Setup" on the CD and double click
- The content of this folder is now shown, locate the file "Setup TD ControlCenter" and double click (this file can also be named "Setup TD ControlCenter.exe" or just "Setup.exe"). Setup will start now proceed as described above.

Appendix B: Bluetooth® Setup and Config Procedure

A Bluetooth USB dongle is shipped with every TD30 system. This dongle is tested to work with the TD unit and can be used if your Computer/Notebook has no built in integrated Bluetooth Hardware. Since there are various ways to use and configure Bluetooth under Windows operating systems, the following procedures are provided to setup and use Bluetooth wireless TD measurement system. You will need Administrator Privileges to install the drivers on certain secure networks.

Communication Parameters for Bluetooth Setup (Advanced Users)

- Bluetooth v1.1 compliant
- Serial Port Profile, only this profile and the corresponding outbound COM port needed
- COM1 to COM99 are supported
- Secure and unsecure communication and pairing supported
- Passkey used is “welcome”, lowercase, (for pairing this is also the PIN-code)

To install the communication three steps have to be done

- **Step 1**: Installation of Bluetooth driver support on your computer (if not already built-in)
- **Step 2**: Configure Bluetooth support (Initial usage, only has to be done once)
- **Step 3-A/B**: Setting up the TD Communication Port
  A: With use of External Dongle or B: Windows Supported Hardware
  There are 2 different ways to set up a communication port, one is with Windows directly supported, one is using the external dongle. See below which procedure is to use with your computer.

Check Bluetooth Hardware

First check if your computer has a built in Bluetooth communications hardware like most of the newer Notebooks have. Normally they are then already configured to use Bluetooth.
In this case you will not need to use the external USB dongle nor should you install the Bluetooth driver CD supplied.

If you are not sure if Bluetooth is installed and running please check with your system administrator to verify if Bluetooth is supported on your computer system.
Installed drivers show a white on blue B-Icon in the system tray on the right bottom side of the desktop (Taskbar). Some Notebooks have separate pushbuttons to switch it on/off.

If Bluetooth is already supported you can go directly *to* Step *3-B Setting up TD Communication (Windows supported).* If your system uses a different driver as shown in this manual use the above mentioned parameters to set up Communication.

Step 1 Installation of Bluetooth support on your computer

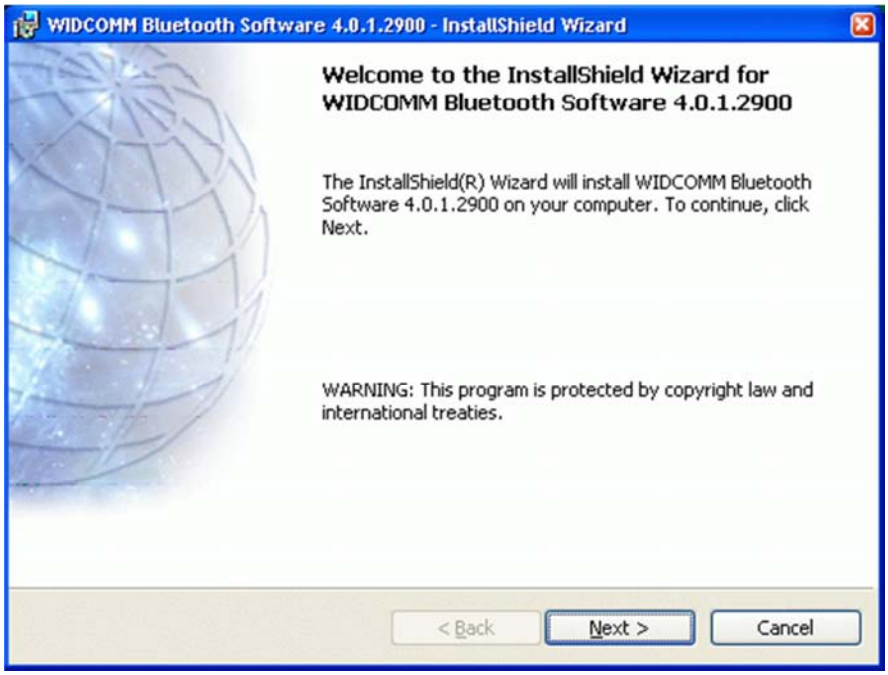
If your computer does not have a built in or existing Bluetooth Hardware you can use the Bluetooth Dongle and CD which is shipped with your TD System. This dongle has been tested to work with the TD unit and has a range of approximately 50 feet / 15 meters.

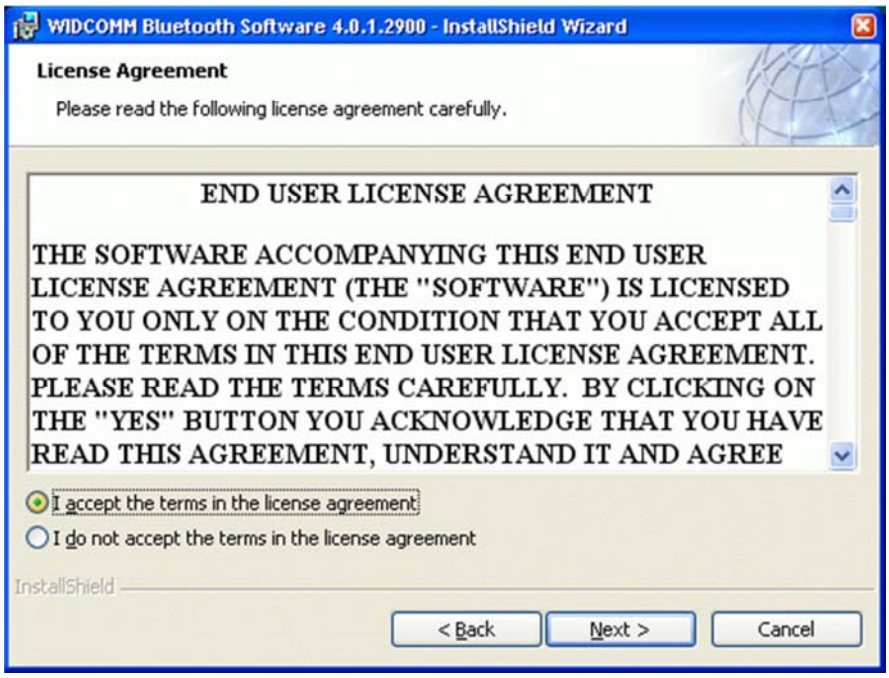
DO NOT INSTALL THE BLUE TOOTH DONGLE BEFORE YOU INSTALLING THE DRIVERS AS DESCRIBED BELOW.

Start Installation

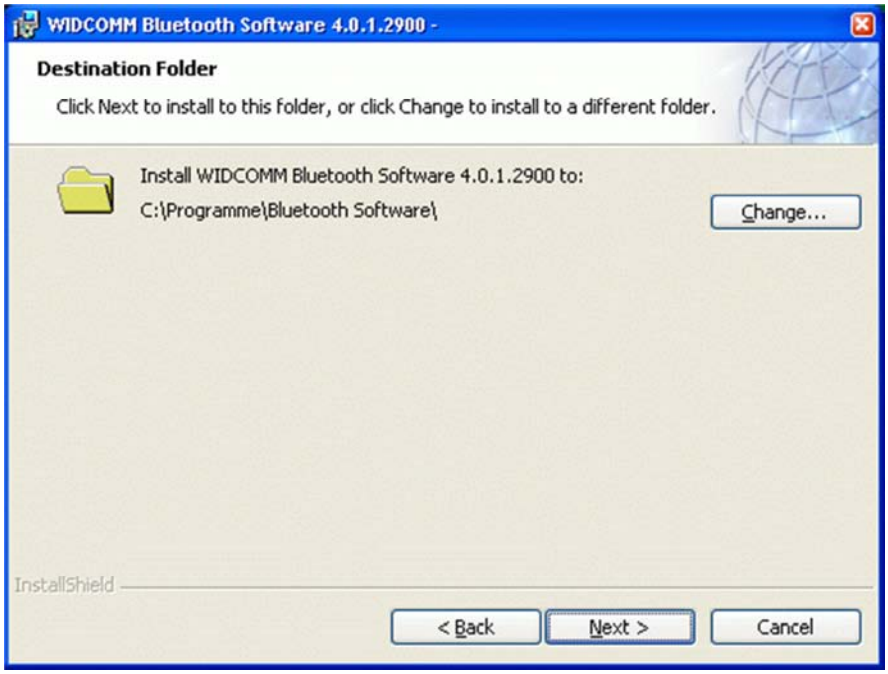
Start the installation process by inserting the driver CD supplied.
The Setup should start automatically, if not locate the CD/DVD drive on “My Computer” and start Setup.exe in the driver folder.

Due to possible technologically changes in drivers and the Windows operating system, certain messages shown below may vary slightly to what you may find on your computer.

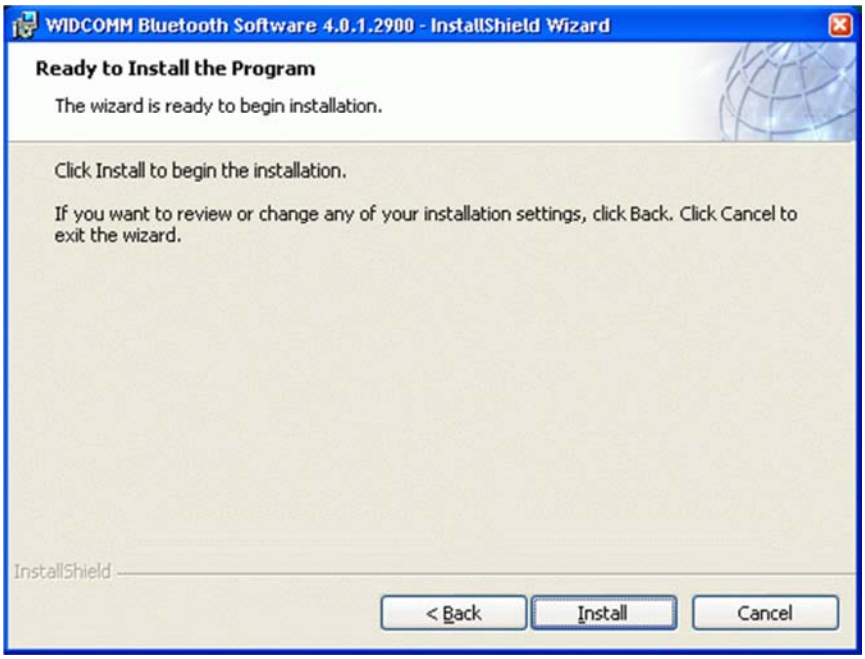




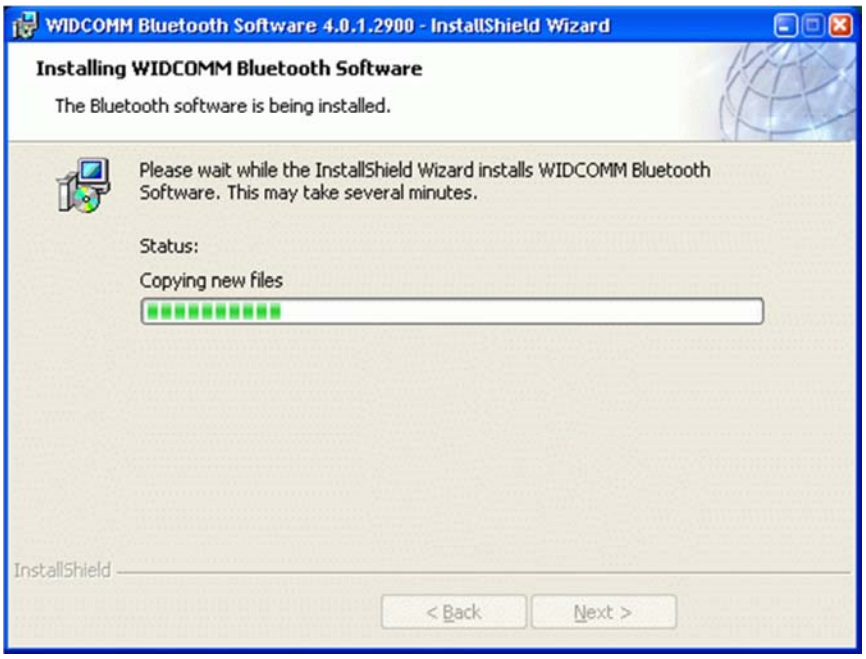
Accept License agreement



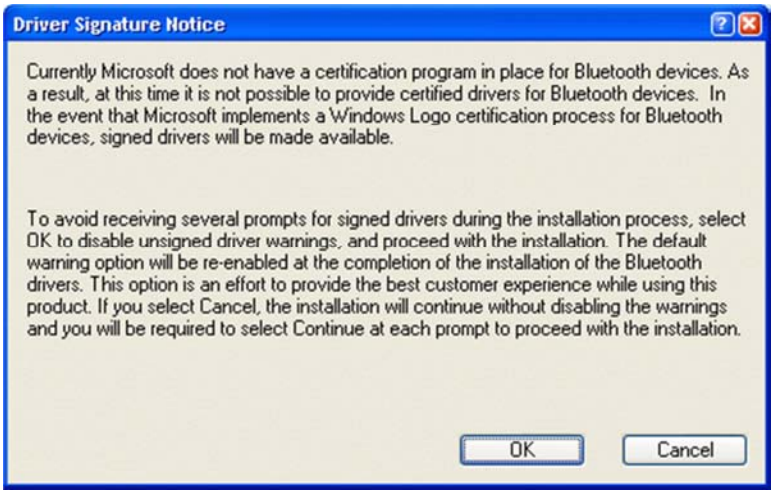
Choose Driver Software Destination. We suggest to use the defaults.



Begin Installation



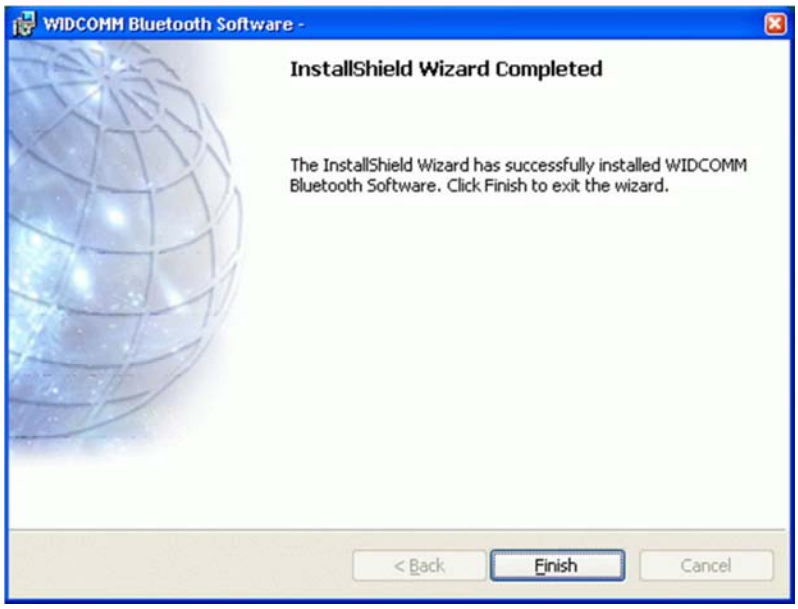
Installation has started



Press OK to accept this driver

The driver now needs to have the Bluetooth dongle inserted.
Plug the dongle into a free USB port. The windows Hardware Installation will now run and some further information windows will appear.
Please wait until the Hardware Detection has finished.
This screen will then disappear automatically.

Installation of Bluetooth support on your Computer. Other information messages may appear. Please wait until the Installation completes.



Installation of Bluetooth support finished.
The above mentioned white on Blue "B"-Bluetooth icon now appears in the system tray.

Step 2 Configure Bluetooth Support (First Time Users)

After successful driver installation a white on blue Bluetooth icon appears in the system tray on the right bottom side of your desktop and a new Icon “My Bluetooth Places” appears on your desktop:

Configure Bluetooth Support using external dongle

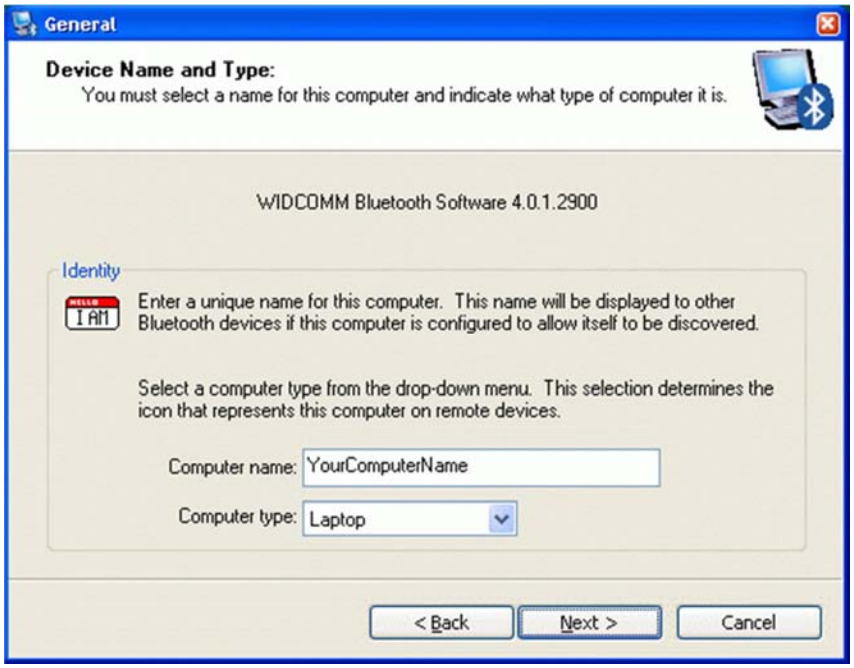
Please follow these instruction to set up a communication port to the TD system if you are using the external dongle with the above mentioned driver (not windows built in support).

First usage configuration

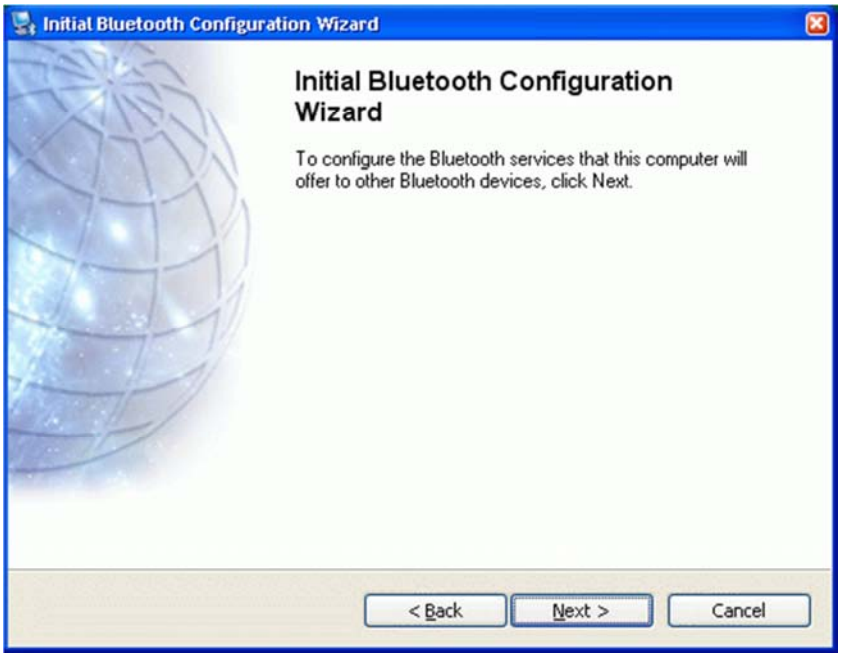
After the new installation of the Bluetooth support on your computer, you have to configure the type of service your computer uses.

Double click on the Bluetooth icon in the system tray or the “My Bluetooth Places” icon on your desktop to bring up the configuration wizard:

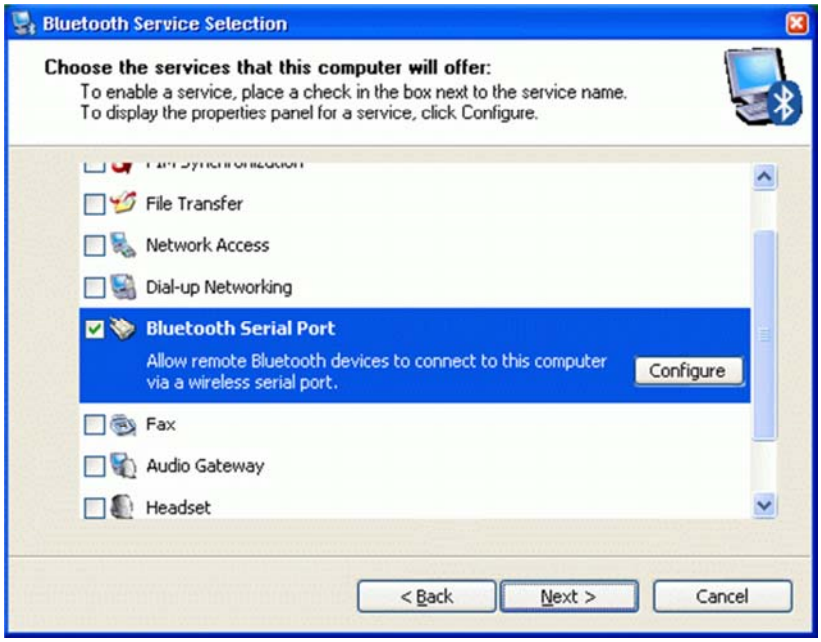
Initial Bluetooth configuration (only has to be done once)



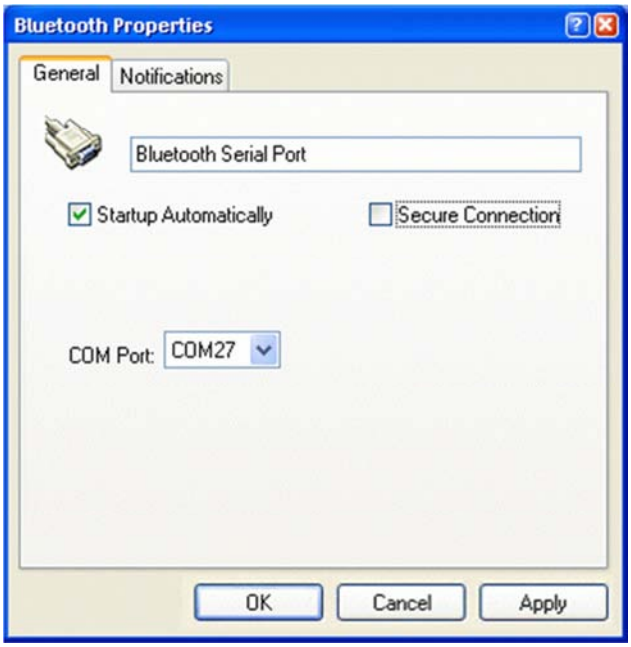
Type in the name and type of your computer



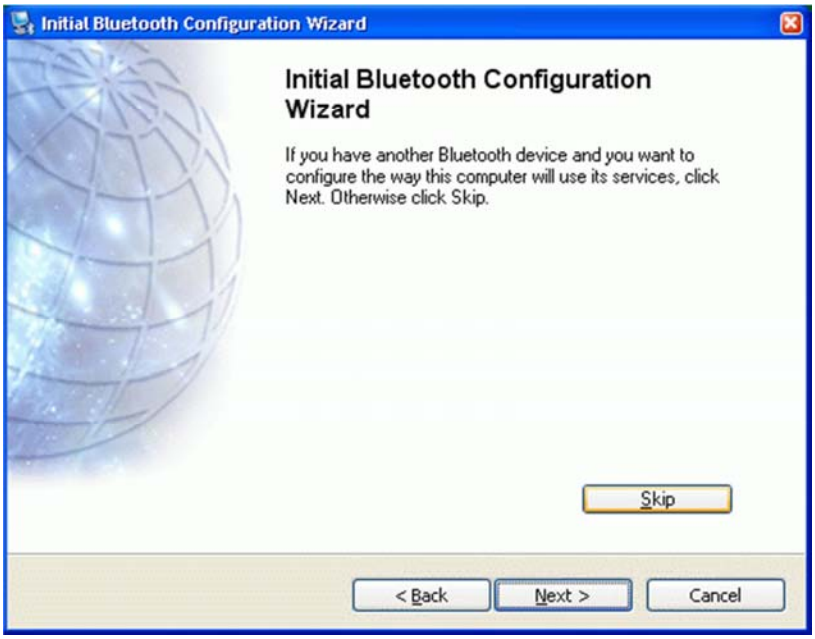
Start Configuration



Check or uncheck those Bluetooth services you want to use.
If you only want to set up for TD communication you can uncheck all except the "Bluetooth Serial Port" which is all the TD30 requires.



Bluetooth Serial Port Configuration. Leave as suggested. Take note of the serial port number.



Press Skip to tell the system that you will connect to the TD system at a later stage.

Finished Initial Setup of Bluetooth Support.

Step 3-A: Setting up a TD Communication Port (External Dongle)

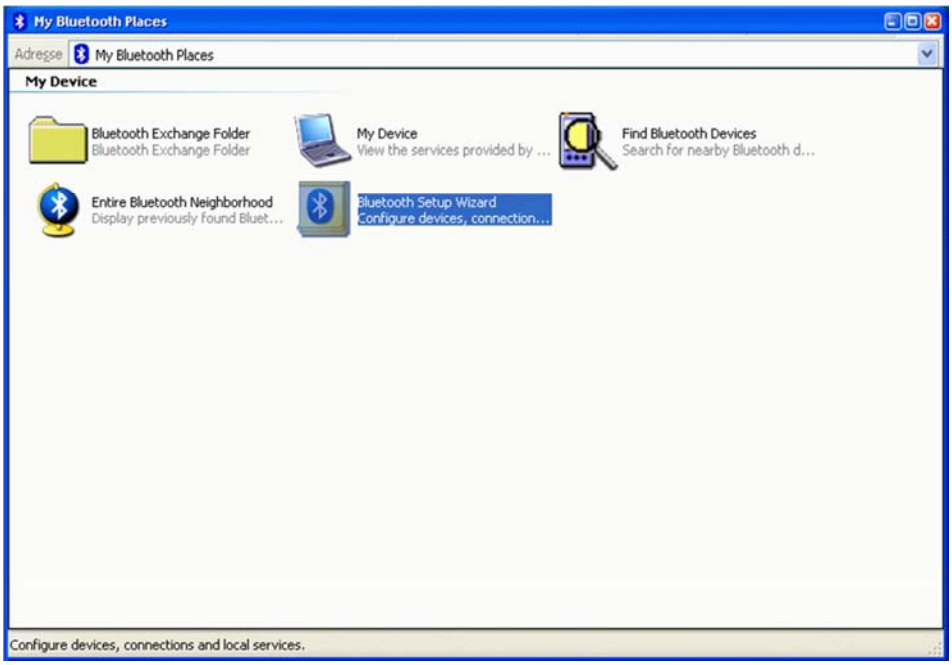
After installation and configuration of the Bluetooth drivers and hardware dongle, an icon called "My Bluetooth Places" gives you access to all Bluetooth specific properties and configurations. All configured devices are listed under the "My Bluetooth Places".

Switch on the TD system

Before connecting, reset the TD System by switching the main power switch off and then ON again.
Make sure the TD system is within 50 foot / 15 meters of the connecting computer. Since the Bluetooth RF signals can be affected by other wireless systems and obstructions such as WLAN or other RF devices, try moving the TD system closer to your computer if you cannot get a "pairing" connection from following the procedure below.

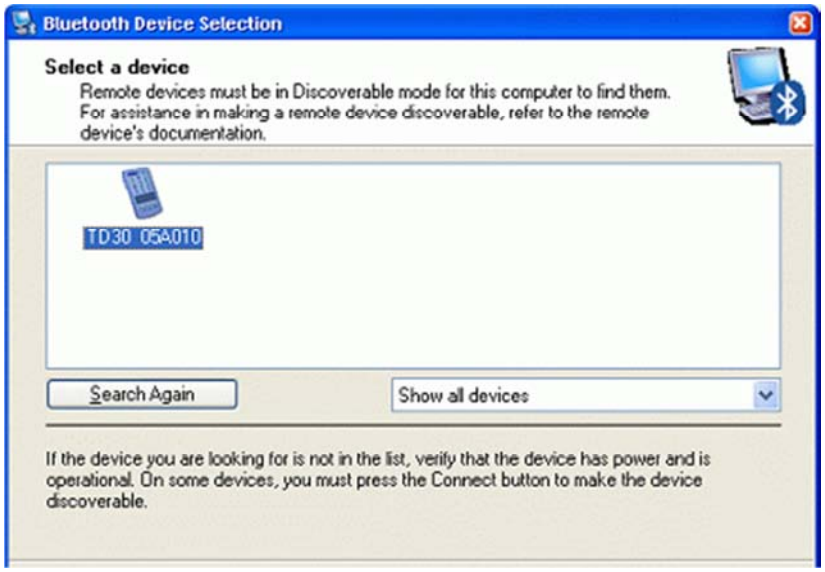
Setup the Communication Port to connect to the TD30

Start to set up a communication port to the TD system by double-clicking on the "My Bluetooth Places" icon.



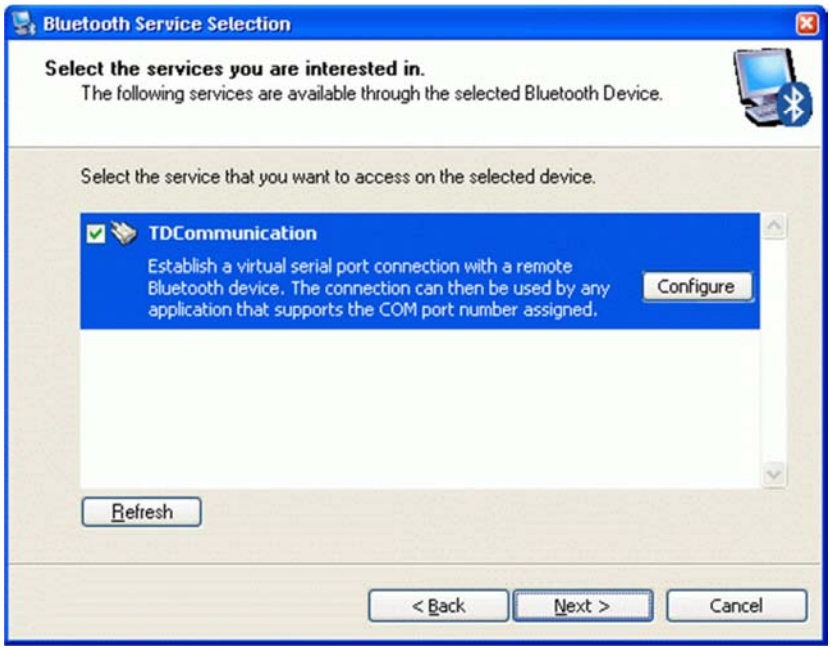
My Bluetooth Places:
Select Bluetooth Setup Wizard to connect to TD system.

Select "I want to find a specific Bluetooth device …"
to find the TD system



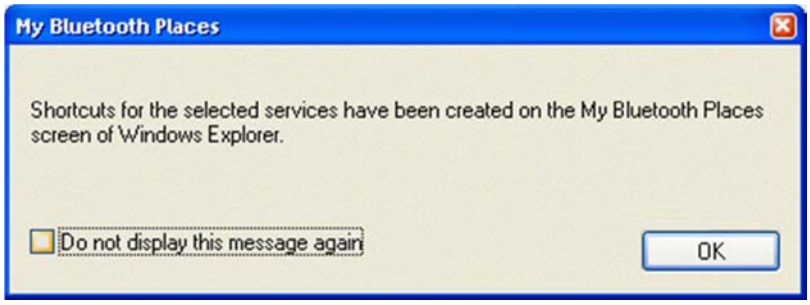
All available Bluetooth devices are listed.
TD systems are shown with the last 6 digits of the Serial number.
Select the TD unit you want to connect to.

Pair the device. Type in the PIN code "welcome" and press "Initiate Pairing".
A message "No Com port available" may be appear. Just quit with ok.



Check the "TDCommunication" service to use.
A message to configure the port will appear.

Leave default setting for this port. Make note of it.
You can use either Secure or Unsecured Connection.



Successful Setup of communication port!

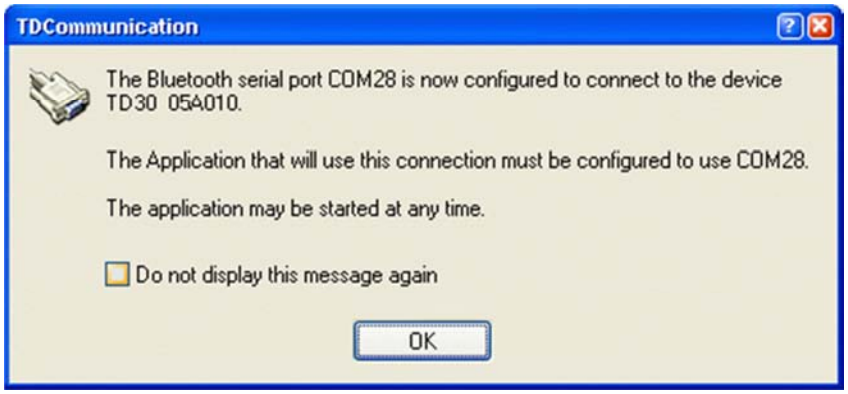
The TD system is now shown as an icon in "My Bluetooth Places"

Initial Connection to the TD unit (Establish and Test connection)

To establish the connection and to fix the settings of the COM-port you have to perform a initial connection to the TD unit. This is also verifies a correct setup.

Double click the TD System icon.

Connecting to the TD System



Established Connection!
Read the information and note the COM-Port Number.
This number is used by the TD ControlCenter to communicate with the TD unit.
You can use the 3rd page of the manual to write down this
Configuration number for later reference purposes.

Close (disconnect) the Test connection
Right click on the TD System icon and select Disconnect.

Disconnecting

It is also possible to switch off the TD system and the connection will automatically be closed.

The System is now configured and you can start working with the TD ControlCenter. You will use the given COM-Port number to set in the ControlCenter and press the connect button.

Step 3-B: Setting up a TD Communication Port (Windows Supported)

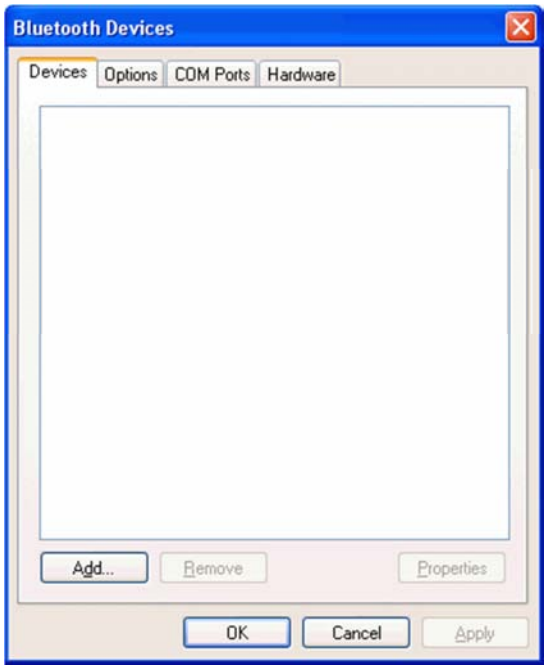
If your Windows operating System already supports your Bluetooth Hardware you can use the Windows Bluetooth System instead of a separate driver to set up the communication. Windows shows you the Bluetooth icon in the System Tray on the right bottom side of your desktop. This gives you access to all Bluetooth specific properties and configurations.

Switch on the TD system

Before connecting reset the TD System by switching the main power switch off and on. Make sure the TD system is within the range of 50 feet / 15 meters to the computer. Internal integrated Bluetooth devices often have closer working ranges than external. So you maybe have to reduce the distance to get good connectivity.

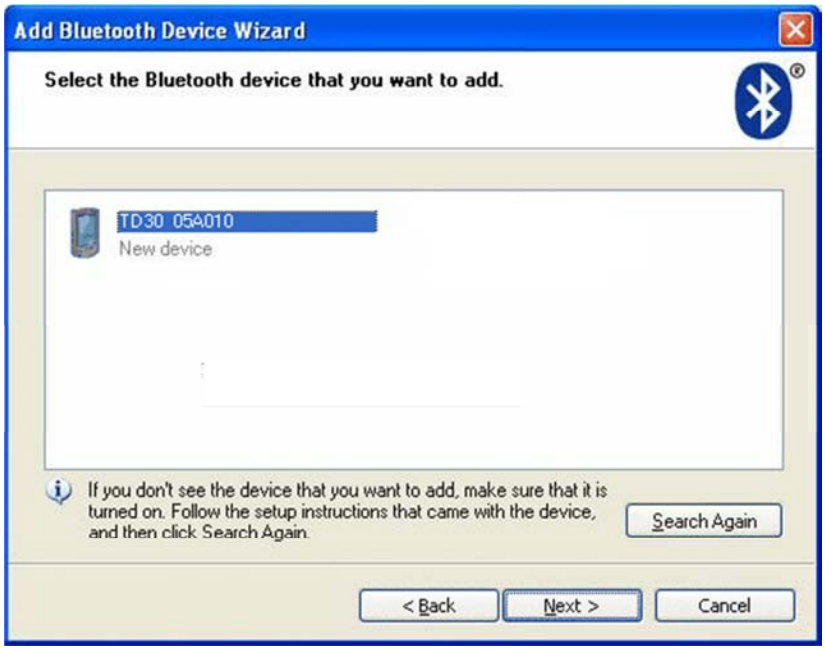
Setup the Communication Port

Start to set up and allocate a communication port to the TD system by double-clicking on the Bluetooth icon in the system tray.

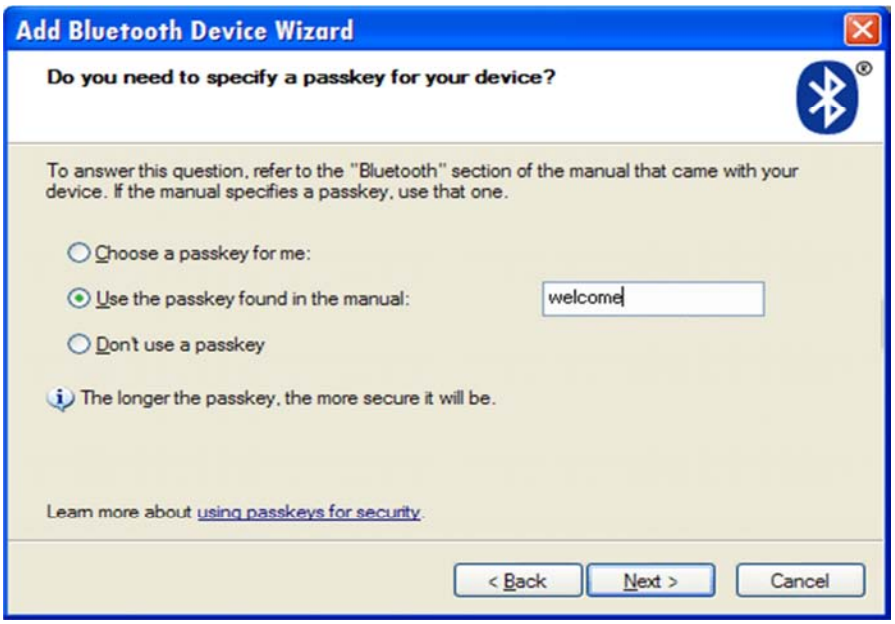


Bluetooth Devices, press Add to start

Check Device is switched on and ready to discover



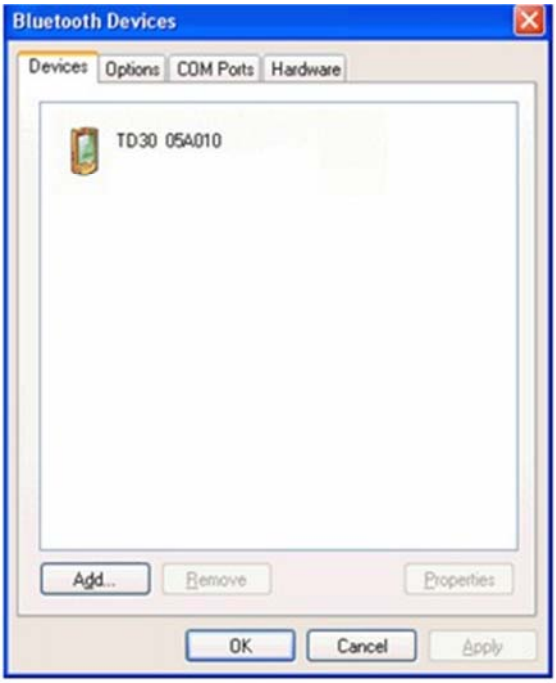
All available Bluetooth devices are listed.
TD systems are shown with the last 6 digits of the Serial number.
Select the TD unit you want to connect to.



Select "Use Passkey from documentation" and enter "welcome" to use as key

Windows connects to the TD System and installs the relevant drivers.

Read the information and note the "outgoing/outbound" COM-Port Number.
This number is used by the TD ControlCenter to communicate with the TD unit.
You can use the 3rd page of the manual to write down this
Configuration Com Port number for later reference purposes.



The System is now configured.

You can start working with the TD ControlCenter.

Use the given COM-Port number in the TD ControlCenter and press the connect button.