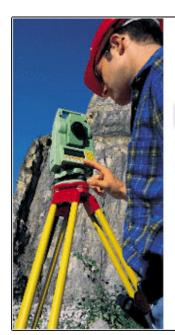
LEICA Survey Office



Leica Survey Office

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1. Introduction

With Leica Survey Office, you will be able to manage total station and digital level survey data with ease and comfort through a widespread functionality offered.

The Leica Survey Office software's many features, divided into **two main** categories, include:

Main Tools

- Data Exchange Manager
- Coordinate Editor
- Codelist Manager
- Software Upload

TPS300/700 & DNA Tools

- Format Manager
- Configuration Manager
- DNA GSI Converter

Besides the above, the software also allows you to integrate program(s) of your preference, which will be classified under the category **External Tools**.

This user's manual is designed to familiarize you with the displays and features of the Leica Survey Office software. The functions and use of the software are also detailed online, accessible from inside the software via the **Help** button.



2. Installing / Uninstalling Leica Survey Office

2.1 Installation

- Load the CD-ROM into the drive; the installation program starts automatically.
- Follow the series of instructions, which the installation program will guide you through.

Note:

Should the CD-ROM not start the installation program automatically after loading, select **Setup.exe** on the CD-ROM to install Leica Survey Office.

2.2 Uninstall Leica Survey Office

- From the Windows Start menu, click Programs > Leica SurveyOffice > Uninstall Leica SurveyOffice.
- Follow the series of instructions, which the uninstall program will guide you through.

3. Getting Started

3.1 Communication Settings

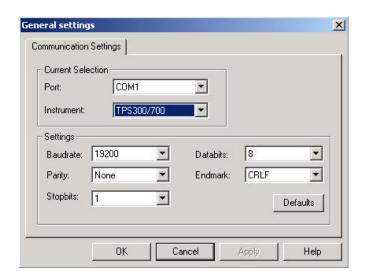
Communications settings, also known as port settings can be set in the main program of Leica Survey Office. The options for setting communications settings are also available in the Data Exchange Manager, Software Upload and Configuration Manager.

3.1.1 Define Communication Settings

- 1. On the **Settings** menu, click **Communication Settings**.
- 2. Under **Current Selection**, in the **Port** box, click the name of the port and in the **Instrument** box, click the instrument class, which your connected instrument belongs to.
- 3. Under Settings, set the Baud rate, Parity, Stop bits, Data bits and End mark to match the communication parameters set in the instrument connected to the serial port. Alternatively, you can set the communications parameters for the serial port to the instrument class default settings by clicking Defaults

- 2 -

4. Click **OK** to specify.



The table below shows the **default communications settings** (**bold**) for the different instrument series and other possible combinations.

	Baudrate	Parity	Stop bits	Data bits	End mark
TC600/800 Series	9600 4800 2400	EVEN	1	7	< CRLF > <cr></cr>
TPS300/700 Series	19200 9600 4800 2400	NONE EVEN	1	8 7	< CRLF > <cr></cr>
TPS1000 Series	9600 4800 2400 19200	NONE	1	8	< CRLF > <cr></cr>
TPS1100 Series	19200 4800 2400 9600	NONE	1	8	<crlf> <cr></cr></crlf>
DNA	19200 9600 4800 2400	NONE EVEN	1	8 7	< CRLF > <cr></cr>

Note:

- Ensure that the communications settings for the selected serial port match the communications parameters set in the connected instrument.
- The same communications settings defined in one application, for example, the Data Exchange Manager, imply to all others in Leica Survey Office.

3.2 External tools

Leica Survey Office allows you to integrate one or more programs, which are classified as external tools after being registered in the main program.

3.2.1 Customization

• On the Settings menu, click Customize.

In the **Customize** dialog box, all registered programs are displayed in the **Menu Contents** box.

Other options available in the **Customize** dialog box are as follows:

Add

To register a program.

Remove

To remove a selected external tool.

Move Up

To focus the external tool immediately above where you are at currently in the **Menu Contents** box.

Move Down

To focus the external tool immediately below where you are at currently in the *Menu Contents* box.

Menu Text

The Menu Text box consists the name of an external tool.

Command

You can select the program you want to register by clicking — on the right of the Command box.

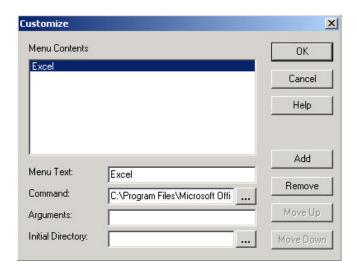
Arguments

You can type arguments (optional) for an external tool.

Initial Directory

You can select the initial directory of an application by clicking on the right of the **Initial Directory** box.

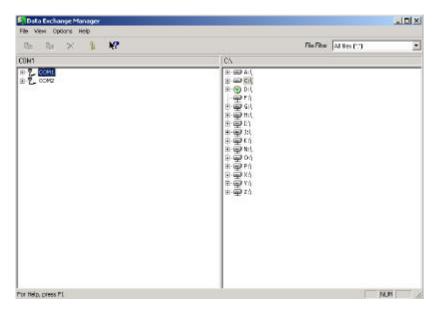
• Click **OK** to register/save or **Cancel** to abort function.



3.3 Data Exchange Manager

Data Exchange Manager enables you to exchange data (for example, Coordinate files, Codelists, Format files, Configuration files) between a connected instrument (either through its internal memory or a memory card, inserted in the instrument or an external drive) and the PC.

The program window, as shown below, consists of two tree-views:



The tree-view on the left shows the instrument type connected to the selected serial port, its contents (internally or a memory card) such as folders and files. The right tree-view displays PC drives, folders and files. You can filter files located on the PC tree-view. Data can also easily be uploaded to a connected instrument or downloaded to the PC.

3.3.1 Transfer file(s) to the instrument/PC

You can transfer file(s) from the PC to a connected instrument (internal memory or memory card) or vice versa

Depending on the instrument class the connected instrument belongs to, you can **upload** the following files:

	Coordinate files	Codelists	Format files	Others
TC600/800 Series	Χ	Χ	Χ	N/A
TPS300/700 Series	X	Χ	X	N/A
TPS1000 Series	X	N/A	N/A	X
TPS1100 Series	X	Χ	N/A	X
DNA	X	X	X	N/A

Depending on the instrument class the connected instrument belongs to, you can **download** the following files:

	Coordinate files	Codelists	Measure- ment files	Result files	Others
TC600/800 Series	X	X	Χ	N/A	N/A
TPS300/700 Series	X	Χ	X	N/A	N/A
TPS1000 Series	X	N/A	X	X	X
TPS1100 Series	X	X	Х	Х	X
DNA	X	X	Χ	N/A	N/A

Note:

 Right clicking over either tree-view will bring you to more functions, which you can perform in Data Exchange Manager.

3.4 Coordinate Editor

Coordinate Editor enables you to create and save coordinate lists containing *Point Id*, *Easting*, *Northing*, *Elevation*, *Code* and *Attributes* that will work on Leica instruments. You can select from the different file types of coordinate lists, namely *IDEX*, *GSI-8/16* and *ASCII* files. Importing data from any structured ASCII file is made easy by using the *File Import Wizard*.

In the Coordinate Edit View, all data contained in a coordinate file are presented in a list. Each row represents a point with specific coordinate values and may include a *Code* and a maximum of eight *Attributes*. Various editing functions can be carried out in the Coordinate Edit View.

Useful Tip:

The coordinate spreadsheet behaves *similar* to the Microsoft Excel spreadsheet.

3.4.1 Create a new coordinate list

- 1. On the File menu, click New to see a window displaying a blank spreadsheet.
- 2. You can then enter your data in the appropriate columns, which consist of Point Id, Easting, Northing, Elevation, Code and Attributes 1 8.

3.4.2 Open a coordinate file

- 1. On the File menu, click Open.
- 2. In the **Files of type** box, click the type (*IDEX, GSI* or *All Files*) of the file you want to open. If *All Files* is clicked, a template can be selected in the **Template** box.
- 3. In the **Look in** box, click the drive or folder that contains the coordinate file.
- 4. In the list box, click the coordinate file you want to open.
- 5. Click **OK** to open.

Note:

IDEX or GSI files, when selected will be opened and displayed immediately in the coordinate Edit View

When an ASCII file is selected, the File Import Wizard will be called if <none> is clicked in the **Template** box of the **Open File** dialog box. The ASCII file will be opened and displayed if a defined template is selected.

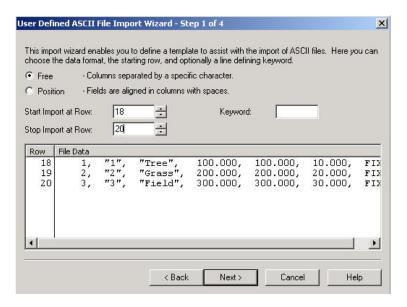
3.4.3 ASCII File Import Wizard

The ASCII File Import Wizard enables you to import ASCII files to the Coordinate Editor. All information about one specific point must be contained within a line. The items may be separated by a specific character or positioned in columns of fixed width separated by spaces.

The wizard, consisting of four steps, guides you through the process on how you can import an ASCII file as follows:

Step 1

- If the items in the ASCII file are separated by specific characters such as tab, semicolon, comma or spaces, select **Free**.
- If the items, positioned in columns of fixed width are separated by spaces, select **Position**.
- In the **Start Import at Row** box, define the first row to be imported. (The first row of the ASCII file is selected by default.)
- In the **Stop Import at Row** box, define the last row to be imported. (The last row of the ASCII file is selected by default).
- In the **Keyword** box, type an **optional** keyword. Only lines containing the keyword will be imported. A keyword may consist of one or more alphanumeric characters.
- Click Next > to the next step of the ASCII File Import Wizard, < Back to the previous step.



Step 2

If you have selected **Free** in the previous step:

- Depending on the ASCII file you want to import, you can select one or more column separators. Possible separators are **Tab**, **Semicolon**, **Comma** and **Space**.
- Select **Other** if the formers are not matching separators in the file and in the box, right of **Other**, type a separator.
- Select **Treat consecutive delimiters as one** if consecutive delimiters are meant as one.

If you have selected **Position** in the previous step:

Column separators can be inserted, moved and deleted as follows:

Insert

Click the position in the data preview window where you want to insert the separator.

Move

Click a separator in the data preview header and move it to the new position.

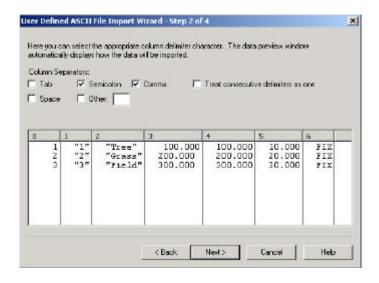
Delete

In the data preview window, double-click the separator at the column border to delete.

Click **Next >** to the next step of the ASCII File Import Wizard, **< Back** to the previous step.

Note:

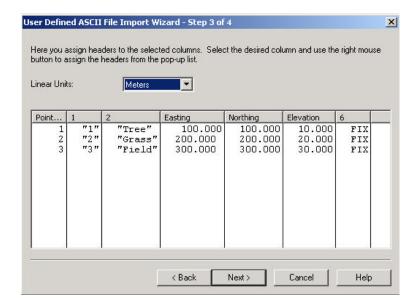
The data preview window will show how the file contents are listed in columns. Ensure that every column contains the correct data before advancing to the next step.



Step 3

All data are now presented in columns. A *linear unit* can be defined at this stage for the coordinate values. To get to the final step of data import, headers must be assigned to the columns. The order of the data within a line is not of importance. However, an *Easting* must co-exist with a *Northing* and vice versa.

- In the Linear Units box, click either Meters or Feet (US).
- header each column to you want To assign a header, right-click the numbered column header in the data preview window and select the appropriate column header (Point Id, Easting, Northing, Attributes Elevation, Code or (1 *– 8)*) on the pop-up A header can be removed by selecting Remove on the pop-up list. All assigned headers will be removed when you select Remove All on the pop-up list.
- Click Next > to the next step of the ASCII File Import Wizard, < Back to the previous step.



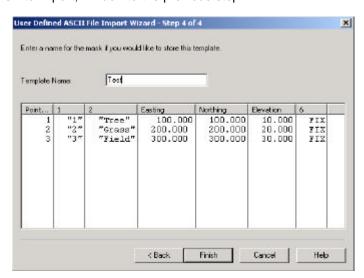
Note:

Columns with no header assigned will not be imported.

Step 4

The current import mask can be stored to a template, which is used to import ASCII files to Coordinate Editor as follows:

- In the **Template Name** box, type a name for the template.
- Click **Finish** to import, **< Back** to the previous step.



Note:

The defined template can be used to open other ASCII files of similar structure other than the file, which the template is created for. Defined templates can be selected in the **Template** box of the **Open File** dialog box.

3.4.4 Coordinate Editing – Define Settings

You can define the *Linear Unit* and *Precision* of a coordinate file.

- 1. On the **Options** menu, click **Settings...**.
- 2. In the **Linear Unit** box, click either *Meter* or *Feet(US)*. Depending on the *Linear Unit* selected, in the **Precision** box, click a *precision*.



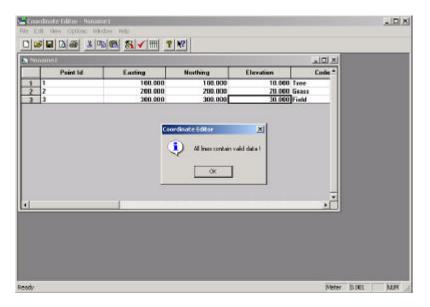
The available linear units and precision are as follows:

Linear Units	Precision
Meter	0.001
	0.0001
	0.00001
Feet (US)	0.001
	0.0001

3.4.5 Coordinate Editing – Data Check

You can check for invalid data within a coordinate file by clicking **Check Data** on the **Options** menu. Invalid data are mainly row(s) containing:

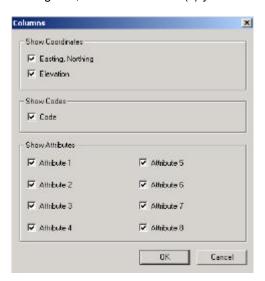
- no Point Id,
- Easting without Northing or
- Northing without Easting.



3.4.6 Coordinate Editing - Columns Display

You can hide/display one or more columns of a coordinate list with the followings:

- 1. On the **Options** menu, click **Columns...**.
- 2. In the Columns dialog box, select the column(s) you want to hide/display.

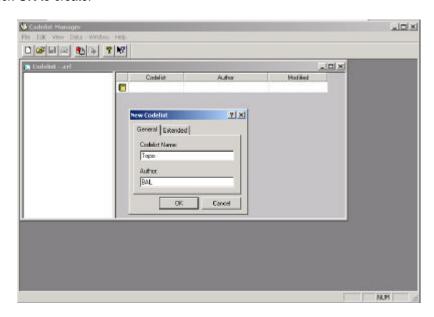


3.5 Codelist Manager

Codelist Manager enables you to create/modify Codelists that will work in Leica instruments. A Codelist may consist of *Layers*, *Codes* and *Attributes*, depending on the type of instruments used.

3.5.1 Create a new Codelist

- 1. On the **File** menu, click **New**.
- 2. Select an Instrument class and a Codelist type on the Codelist type dialog box.
- 3. Click **OK** to see the **New Codelist** dialog box.
- 4. Under **General**, type a name for the Codelist.
- 5. Click **OK** to create.



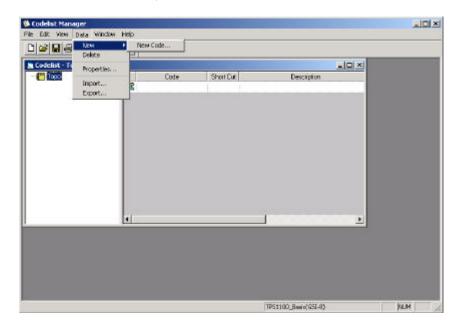
Codelist Types

	TPS300 Series	TPS700 Series
Basic	Free Coding for WI 41 – 49	Free Coding for WI 41 – 49
	The Basic Codelist consists of Codes, Attributes 1 – 8 with optional default value (Attribute Value), which can be defined for each code.	The Basic Codelist consists of Codes, Attributes 1 – 8 with optional default value (Attribute Value), which can be defined for each code.
		An optional <i>shortcut</i> can be defined for each code, which is used for quick coding on TPS700 Series instruments.
Advanced	In addition to the <i>Basic</i> Codelist, the following features are available in the <i>Advanced</i> Codelist:	In addition to the <i>Basic</i> Codelist, the following features are available in the <i>Advanced</i> Codelist:
	definition of a Code descriptioneditable Attribute NamesAttribute TypeValue Type	definition of a Code descriptioneditable Attribute NamesAttribute TypeValue Type

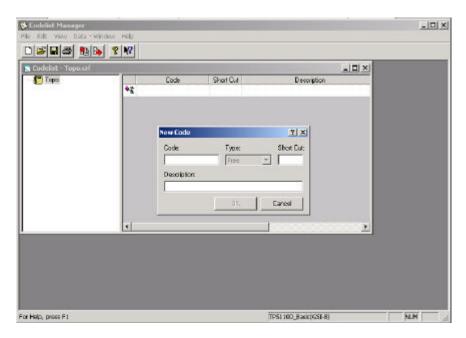
	TPS1100 Series
Basic (GSI-8)	Free Coding for WI 41 – 49. Coding with Code-Key.
, ,	
	The Basic (GSI-8) Codelist consists of Codes, Descriptions,
	editable Attribute Names and Attribute Types with optional
	Default Values, which can be defined for each code.
	An antional abortant can be defined for each code, which is
	An optional <i>shortcut</i> can be defined for each code, which is used for quick coding on TPS1100 Series instruments.
Basic (GSI-16)	Free Coding for WI 41 – 49. Coding with Code-Key.
24010 (861-19)	Those coding for VII The To. Coding with Code Roy.
	The Basic (GSI-16) Codelist consists of Codes, Descriptions,
	editable Attribute Names and Attribute Types with optional
	Default Values, which can be defined for each code.
	As an Casal aborder to a banda Casal Casas a banda subish is
	An optional shortcut can be defined for each code, which is used for quick coding on TPS1100 Series instruments
Advanced (GSI-8)	Free Coding for WI 41 – 49. Coding with Code-Key.
Advanced (GSI-0)	Thee Coding for What - 49. Coding with Codercey.
	Point Codelist for WI 71 –79.
	In addition to the Basic Codelist, the following features are
	available in the Advanced Codelist:
	Volue Type (Text. Beel, Integer)
	- Value Type (Text, Real, Integer) - Value Region (None, Choice-list, Range)
	- Attribute Values
Advanced (GSI-16)	Free Coding for WI 41 – 49. Coding with Code-Key.
	Point Codelist for WI 71 –79.
	In addition to the Design Codeling the following factors
	In addition to the <i>Basic</i> Codelist, the following features are available in the <i>Advanced</i> Codelist:
	available in the Advanced Codelist.
	- Value Type (Text, Real, Integer)
	- Value Region (None, Choice-list, Range)
	- Attribute Values

3.5.2 Create a new Code

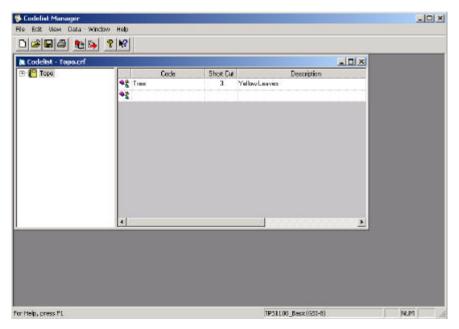
1. With focus on the tree-view, click **New > New Code** on the **Data** menu.



- 2. On the **New Code** dialog, under the **Code** column, type a name for the new Code. A Code name may consist of a **maximum** of 8 alphanumeric characters.
- 3. Under the **Short Cut** column, type a short cut for the new Code. A Short Cut may consist of a **maximum** of 2 digits.
- 4. Under the **De scription** column, type a description for the new Code. A Description may consist of a **maximum** of 16 alphanumeric characters.
- 5. Under the **Type** column, click a Type (*Free*, *Point*, *line* or *polygon*). Note that the available options for Type depends on the type of Codelist you have selected.



6. Press the ENTER key to add the next Code.



3.5.3 Create a new Attribute

- 1. On the tree-view pane, with focus on the Attribute and click **New > New Attribute**... on the **Data** menu.
- 2. In the **New Attribute** dialog box, type a name for the Attribute in the **Attribute Name** box. An Attribute name can consist of a **maximum** of 30 alphanumeric characters.
- 3. In the **Attribute Type** box, click *Normal, Mandatory* or *Fixed*. If *Fixed* is clicked, **only** the **Default Value** will be displayed on the instrument screen-board and is also

automatically attached to the Attribute. If *Mandatory* is selected, the *Value* must be edited in the field.

- 4. In the Value Type box, click Text, Real or Integer.
- 5. In the **Value Region** box, click *None*, *Choice List* or *Range*. If *Real* or *Integer* is clicked in the previous step, you can select *None*, *Choice List* or *Range*. If *Text* is clicked, you have either to select *None* or *Choice List*.

If either *Choice List* or *Range* is selected in the previous step, click the **Attribute Values** tab. The followings show how you can enter value(s) for the **Value Region** you have selected in the previous step:

Choice List

Click

Add to enter a new value.

Delete to delete a value.

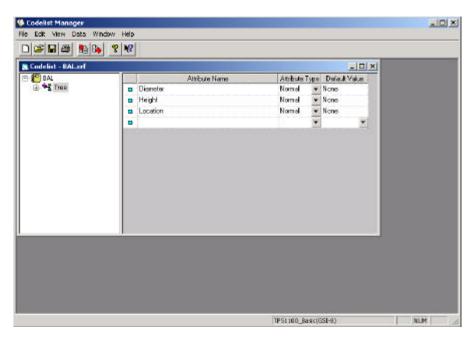
Move Up to move a Value one position up in the list.

Move Down to move a Value one position down in the list.

Range

Enter the range of values in the From and To boxes.

- 6. In the **Default Value** box, enter a value. You can define the **Default Value** from the **Choice List** or **Range** if you had selected either as the **Value Region** in step 5. Note that it is optional to enter a value in the **Default Value** box. For a *Fixed Value*, you have to define its *Default Value*.
- 7. Click **OK** to create.



3.6 Software Upload

Software Upload can either be used to transfer system software files from the PC to a TPS300/700 Series or DNA instrument or system firmware, system languages, EDM/ATR firmware, applications or configurations from the PC to a TPS1000 Series, TPS1100 Series or RCS1100 instrument.

The program also enables you to view general information, the system environments and installed applications of either a TPS1000 or TPS1100 Series connected instrument.

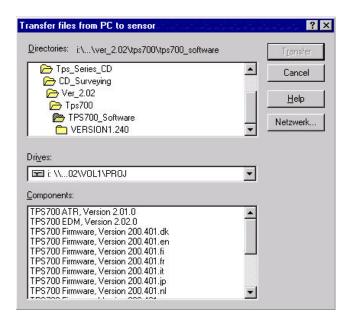
3.6.1 Transfer software files

To ensure a successful uploading of software files, the instrument must be connected to a serial port and switched off. The communications settings for the serial port of the PC must match the communications parameters set in the connected instrument.

For the TPS300/700 Series & DNA instruments, you can transfer software files through its **Transfer files from PC to sensor** dialog box. For the TPS1000 & TPS 1100 Series and RCS1100 instruments, you will be guided by the Software Installation Wizard for the transferring of software files.

3.6.2 Transfer software files to TPS300/700 Series or DNA instruments

- 1. On the Utilities menu, click Transfer files....
- 2. In the **Drives** box, click the drive that contains the software files.
- 3. In the **Directories**box, click the directory that contains the software files.
- 4. In the **Components** box, click the components to be transferred to the connected instrument.
- 5. Click Transfer to upload.



Note:

- Ensure that the instrument battery does not run out during the installation of the system firmware or EDM/ATR firmware. It is recommended that the battery be freshly charged before the start of a transfer.
- Once the transfer of software files has been implemented, the transfer must not be cancelled and the instrument must not be disconnected.

3.6.3 Transfer software files to TPS1000/1100 or RCS1100 Series instruments

A Software Installation Wizard, explained as follows, will guide you through the process on how you can transfer the software files. Depending on the software type you select, you will see the following dialogs:

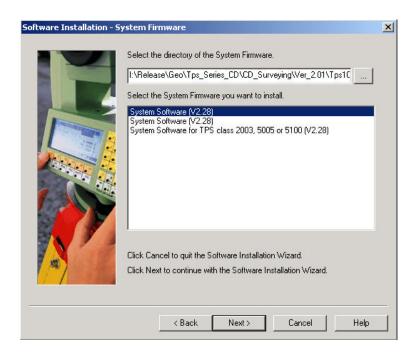
Software Installation Wizard - Select Software Type

- On the Software Installation Wizard dialog, click System Firmware or Other Sensor Software (System Language, EDM Firmware, ATR Firmware, Applications, Configuration) to install.
- Click Next > to the next step of the Software Installation Wizard.



Software Installation Wizard - System Firmware

- Click on the right of the **Select the directory of the System Firmware** box to select the location of the software file you want to transfer.
- On the **Choose Directory** dialog box, under Drive, click the directory that contains the software file you want to install.
- In the list box above, select the appropriate folder.
- Click OK to accept selected directory or Cancel to abort function.
 Note: You will return to the Software Installation System Firmware dialog after clicking either OK or Cancel.
- In the **Select the System Firmware you want to install** list box, select the software file you want to transfer.
- Click Next > to the next step of the Software Installation Wizard, < Back to return to the previous step.

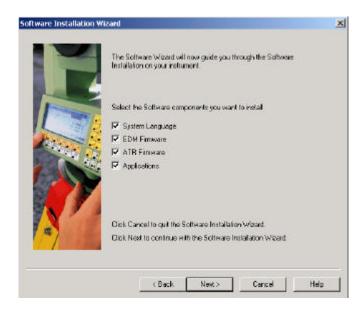


Software Installation Wizard - Other Sensor Software

 On the Software Installation Wizard dialog, you can select one or more of the following components:

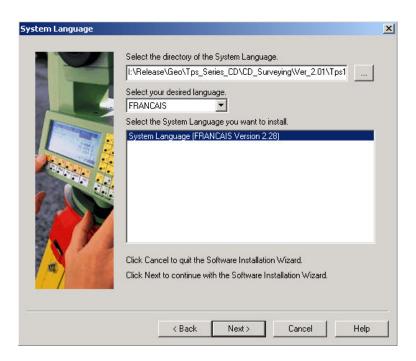
System Language
EDM Firmware
ATR Firmware
Applications
Configuration (only applicable for TPS1100 Series instruments)

 Click Next > to the next step of the Software Installation Wizard, < Back to return to the previous step.



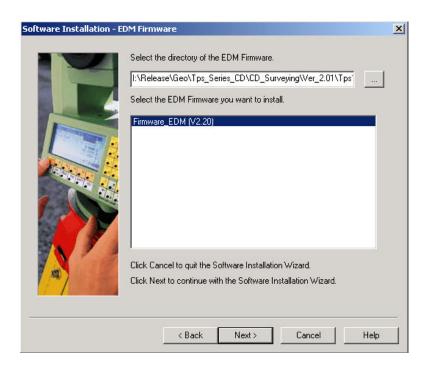
Software Installation Wizard - System Language

- Click on the right of the **Select the directory of the System Language** box to select the location of the software file you want to transfer.
- On the **Choose Directory** dialog box, under Drive, click the directory that contains the software file you want to install.
- In the list box above, select the appropriate folder.
- Click OK to accept selected directory or Cancel to abort function.
 Note: You will return to the System Language dialog after clicking either OK or Cancel.
- Click on the right of the **Select your desired language**. box to select the language of the software file you want to transfer.
- In the **Select the System Language you want to install.** list box, select the software file you want to transfer.
- Click Next > to the next step of the Software Installation Wizard, < Back to return to the previous step.



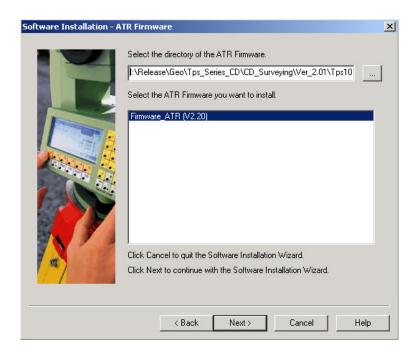
Software Installation Wizard - EDM Firmware

- Click on the right of the **Select the directory of the EDM Firmware** box to select the location of the software file you want to transfer.
- On the **Choose Directory** dialog box, under Drive, click the directory that contains the software file you want to install.
- In the list box above, select the appropriate folder.
- Click OK to accept selected directory or Cancel to abort function.
 Note: You will return to the Software Installation EDM Firmware dialog after clicking either OK or Cancel.
- In the **Select the EDM Firmware you want to install.** list box, select the software file you want to transfer.
- Click Next > to the next step of the Software Installation Wizard, < Back to return to the previous step.



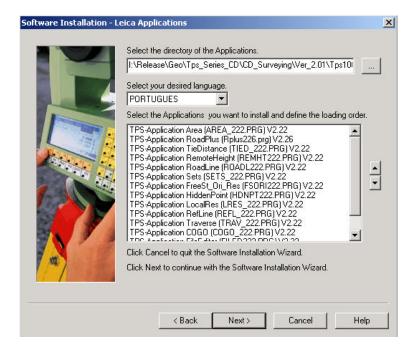
Software Installation Wizard - ATR Firmware

- Click on the right of the **Select the directory of the ATR Firmware** box to select the location of the software file you want to transfer.
- On the **Choose Directory** dialog box, under Drive, click the directory that contains the software file you want to install.
- In the list box above, select the appropriate folder.
- Click **OK** to accept selected directory or **Cancel** to abort function.
- Note: You will return to the Software Installation ATR Firmware dialog after clicking either OK or Cancel.
- In the **Select the ATR Firmware you want to install.** list box, select the software file you want to transfer.
- Click Next > to the next step of the Software Installation Wizard, < Back to return to the previous step.



Software Installation Wizard - Leica Applications

- Click on the right of the **Select the directory of the Applications** box to select the location of the software file you want to transfer.
- On the **Choose Directory** dialog box, under Drive, click the directory that contains the software file you want to install.
- In the list box above, select the appropriate folder.
- Click OK to accept selected directory or Cancel to abort function.
 Note: You will return to the Software Installation Leica Applications dialog after clicking either OK or Cancel.
- Click on the right of the **Select your desired language**. box to select the language of the software file you want to transfer.
- In the Select the Applications you want to install and define the loading order. list box, select the software file(s) you want to transfer.
- Click **Next** > to the next step of the **Software Installation Wizard**, < **Back** to return to the previous step.



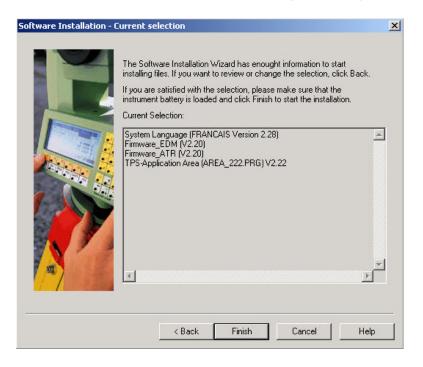
Software Installation Wizard - Configuration

- Click on the right of the **Select the directory of the Configuration** box to select the location of the software file you want to transfer.
- On the **Choose Directory** dialog box, under Drive, click the directory that contains the software file you want to install.
- In the list box above, select the appropriate folder.
- Click OK to accept selected directory or Cancel to abort function.
 Note: You will return to the Software Installation Configuration dialog after clicking either OK or Cancel.
- Click on the right of the **Select your desired language**. box to select the language of the software file you want to transfer.
- In the **Select the Configuration you want to install.** list box, select the software file(s) you want to transfer.
- Click **Next** > to the next step of the **Software Installation Wizard**, < **Back** to return to the previous step.

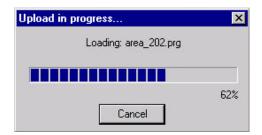


Software Installation Wizard - Current selection

 Click Finish to upload the software file(s) after you have confirmed your selection in the Current Selection list box, < Back to return to the previous step.



Please wait while the upload is in progress.



Finally, click **OK** on the **Software Upload** dialog to end the uploading procedures.

