

Using Disto Pro4 with FloorRight™ Application

This document describes how to use the Disto Pro4 to take room measurements so FloorRight™ can recognize them. It also describes the basic procedure for transferring measurements into FloorRight via serial cable.

Equipment Required

1. FloorRight™ 2002 or FloorRight Commercial™ version 3.0 or later
2. Disto Pro4
3. Disto Pro4 serial cable

General Measuring Advice

It's a good idea to familiarize yourself with the Disto first. Please refer to the Disto manual for details. It's important to keep the following facts in mind:

1. The Disto has a minimum range of approximately one foot. Distances less than that minimum cannot be measured directly. You can work around this limitation with the subtract feature or measure using the ruler on the back of the Disto and enter the distances manually. See the Disto manual for details.
2. The Disto can be configured to measure from the back or front of the Disto. Type **Menu**, then press **1, 1, 1** to measure from the front. Type **Menu**, then press **1, 1, 3** to measure from the back.

Measuring Procedure

Measurements must be taken in order either clockwise or counterclockwise around the room. Each measurement must be tagged with a site name, room name, and direction.

1. If the Disto is off, press the **On/Dist** key briefly.
2. Pressing the **Dist** key briefly will start the measurement. The Disto laser will turn on. Press the **Dist** key again, and the measurement will be taken. You will see the distance displayed on the screen.
3. Next, press and hold the = button for about a second to start storing the measurement.
4. You should now see the Disto data storage screen. The Disto allows you to enter three lines of text. In the first line, you will enter the site. In the second line, you will enter the room name. In the third line, you will enter a direction.

5. Enter the site name. Use the up and down arrows to the left of the **Dist** key (if necessary) to move to the first line. If necessary, use the **C** key to clear out unwanted text. Look closely at the Disto number buttons - you will see characters under each one. If you press a number briefly and wait, you will get the first character. If you rapidly press a number twice in a row, you will get the second character – and three quick presses gets you the third. Pressing and holding the number for a second gets you the literal number. Remember – you can use **C** to correct any mistakes.
6. Enter the room name in the second line, following the same procedure.
7. Enter the direction in the third line. The direction must be a one or two-character direction: N, S, E, W, NE, SE, NW, or SW. Choose the direction that points to the next wall you are going to measure. For example, if you are measuring a N-S wall and the next wall is to the north, you should enter N as your direction.
8. Alternately, you can use numbers. Imagine the number pad is a compass, with 2 pointing north. Then you get the following meaning for the numbers:

Direction	Number
North	2
North East	3
East	6
South East	9
South	8
South West	7
West	4
North West	1

9. When you are finished, press the = key briefly. This will store the measurement along with your site, room and direction labels.
10. Now you can start the next measurement. Remember, the Disto will automatically copy the Site and Room names and put you at the direction line when you start saving the measurement. For measurements in the same room, you do not to modify these first two lines – simply enter the direction.

If you wish, you can skip the last wall, or in the case of a rectangular room, the last two walls. FloorRight will fill in the last wall(s) for you.

Correcting Saved Measurements

1. Hit the **Menu** key, then press the following numbers: **6, 4, 3**.

2. You should see one of your measurements. Use the arrow keys to find the particular measurement you wish to correct. Press the = key when you see the measurement you want.
3. Use the arrow keys to select the label you wish to change, and then use C to erase old text. You can enter new text as before. When done, press the = key. You can use the arrow keys to move to another measurement, or press the C key repeatedly to get out of the correction menu

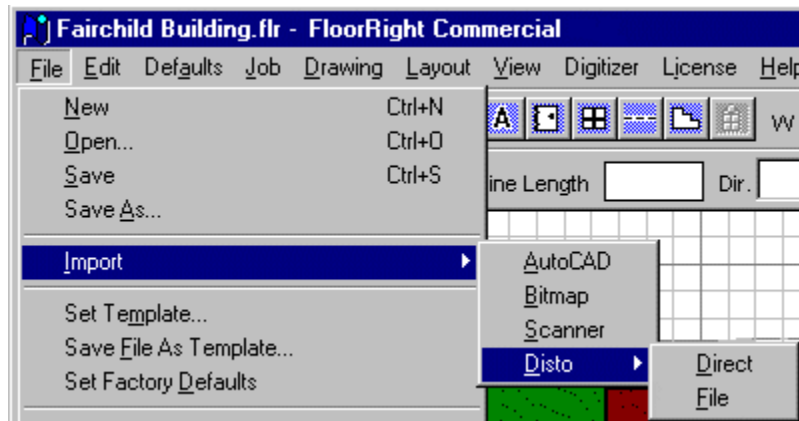
Common Measurement Mistakes

1. Remember, to get a number, you must press and hold the number key. When using the numeric direction scheme, it is easy to forget this and enter some unwanted letter instead.
2. Remember to change the room name when moving to another room. It is easy to enter the measurements into the last room. The same principle applies to sites.
3. Be careful not to take the walls out of order, or to enter directions that point toward the previous wall instead of the next.
4. Make sure to keep track of which direction you are facing, especially when moving between rooms.

You can always correct measurements in the Disto once they're saved.

Importing Data into FloorRight

1. Find the black serial connector flap on the left of the Disto toward the bottom. Open this flap, and connect the smaller round end of the serial cable. The connector must be oriented properly before it will engage - the red dot on the cable connector should match the red mark on the Disto receptacle.
2. Connect the other end of the cable to a free serial port on your computer.
3. From FloorRight menu, select **File / Import / Disto**



Here you have a choice of **Direct** or **File**. Usually you will use **Direct** to bring in the data from the Disto device, but occasionally you might want to save the raw Disto data to a file for examining later, *e.g.* if the file contained errors. See the description of the **Save** button later in this section. If you have saved a .csd file and now want to create a FloorRight project from it, select **File** and use the standard *Windows Open* dialog to bring in the data file.

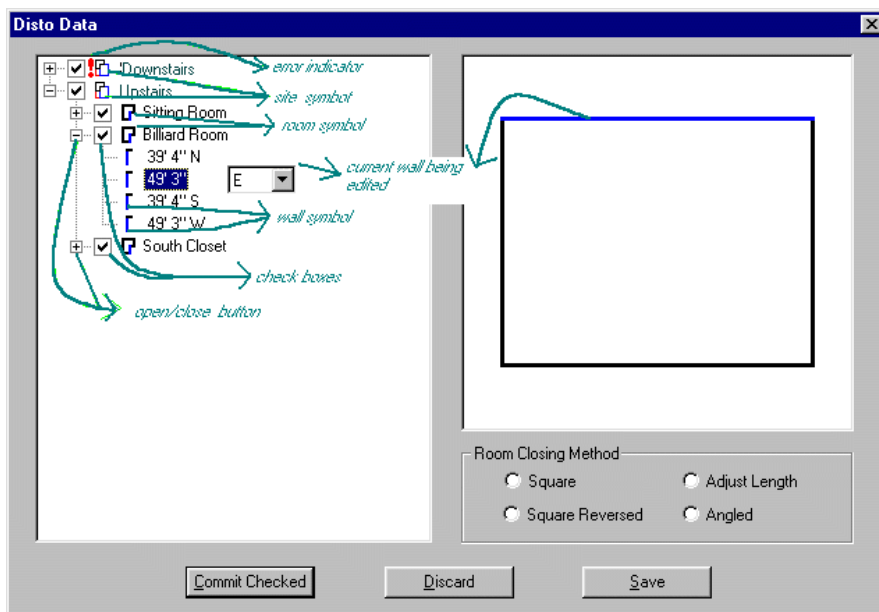
Whether you created a .csd file or brought the data in directly, the information is displayed in the Disto Data dialog box. Check the data for errors, making any necessary corrections, then click **Commit Checked** to convert your measurements into a FloorRight drawing. From the FloorRight Room View you can rearrange the rooms as needed.



Once your data is safely loaded into FloorRight, don't forget to delete it from your Disto device; otherwise the old data will be included with the next batch of data you collect. . To do this, press **Menu**, then the press **6, 4, 4**. You can press the **C** key at this point if you change your mind. You must press the **C** key several times to get out of the menu and back to measuring.



Disto Data Dialog Box


The **Disto Data** dialog contains a window for display and editing of the data, a room display window, a group of radio buttons for choosing the room closing method, and the buttons for final action before closing the dialog box.


Disto data is arranged in a tree structure just like files in the *Windows Explorer*, or the table of contents of this help system. Sites contain rooms containing a list of wall measurements.



Each entry can be opened with a click of the open  button, or a double click on the entry name or symbol. The close  button hides all subentries of the clicked entry.

The next symbol in the entry is the checkbox  . A click toggles the checkmark. If the box is not checked, the entry and its subentries will not be imported to the FloorRight file. If you click on a checked site, the check is deleted from the site and all rooms in the site. None of these unchecked rooms will be imported. This function is handy if you find old data, which is not part of the current batch.

A site is an optional label for grouping rooms, *e.g.* by upstairs / downstairs, apartment number, material type, etc. Under the room entry, walls must be listed in the order that they connect. The direction of a wall must be one of N, NE, E, SE, S, SW, W, and NW. See the FloorRight  Instruction Manual for the Leica Disto for more information on gathering data.

The  indicates an error in the data. An error in a wall measurement will result in an error mark by the wall, by the room containing that wall, and by the room's parent site. Any rooms containing errors will not be imported.

You can edit the Disto data before sending it to FloorRight. Drag-and-drop operations are available for walls and rooms. Walls, rooms and sites can be created, deleted, and renamed.

The Room Display window appears when you click on a room entry. If the room display is grayed when the room entry is highlighted, there is some illegal data in one or more wall entries or the room may contain less than two walls. Open the room and edit the errors. Walls are displayed with the following color code:

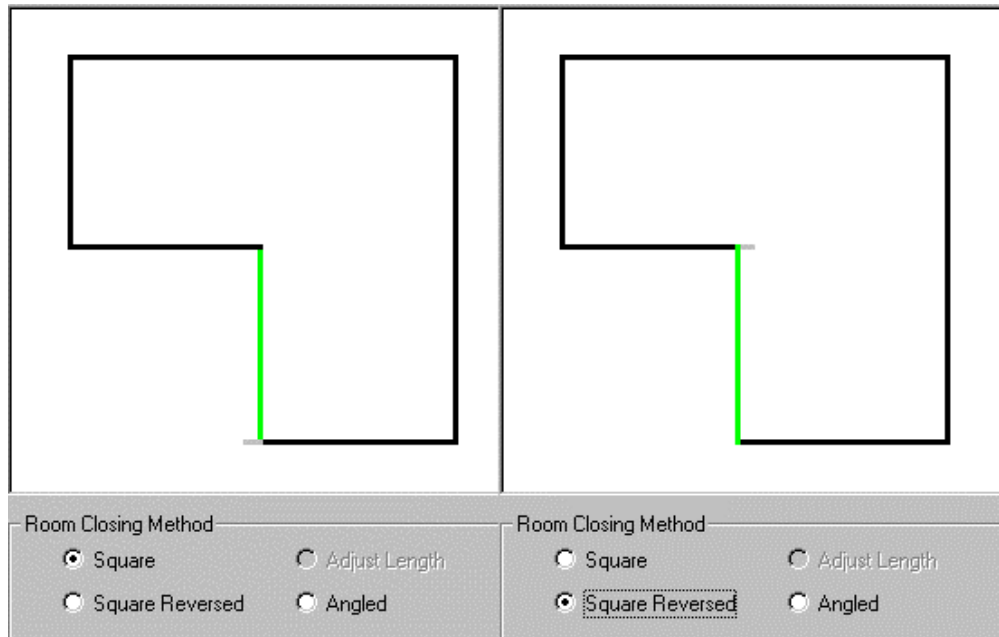
- Walls without errors are displayed in black
- A wall selected from the data list is displayed in blue
- Walls with errors are displayed in red
- A selected error wall is displayed in pink
- Walls that have been added by one of the **Room Closing Method** buttons are displayed in green
- Wall segments that are ignored as a result of adjustments made by the Adjust Length room closing button are displayed in gray

Room Closing Methods are selected by a group of buttons. When you open the room, the applicable closing methods are displayed. Some buttons will be grayed (*i.e.* not useful for this room). You can click any of the available buttons. Added walls appear in green in the room display window.

- **Square** and **Square Reversed** give similar results. They finish the room with a square corner. Depending on the room list, you may have one or the other or both to choose.

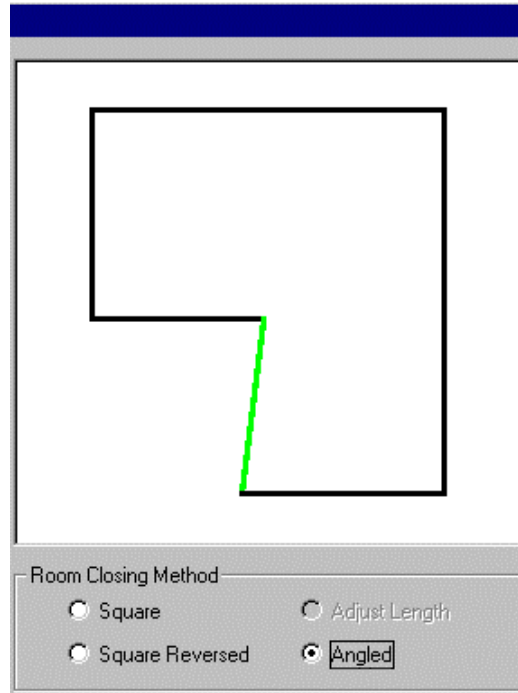
- **Angled** closing connects the end of the last wall with the beginning of the first wall in the room, no matter what the resulting angles might be.
- **Adjust Length** closing is handy for small overlaps of the walls. The overlapping pieces are displayed in gray and trimmed before sent to the FloorRight drawing.

In the room below, there is a difference between **Square** and **Square Reversed**. The first wall and the last wall overlap slightly for a squared closing and the closing methods take the overlap from different walls.

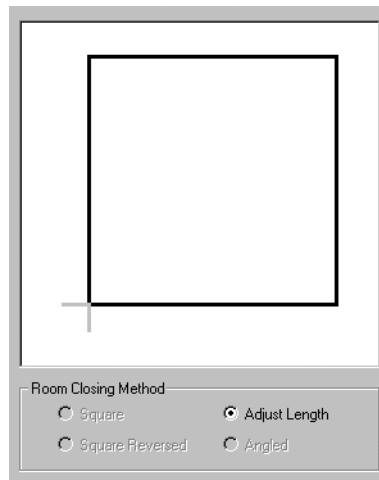


If you are not sure which wall should be shorter, you may want to split the difference, in which case you can edit the measurements in the data window.

Alternatively, these wall measurements could be correct and you could have an odd angled wall, in which case you would choose **Angled** closing.



Another kind of closing choice would be the following.




The closing methods allow you to (purposefully or not) leave out the last Disto measurement of a room and use one of the available buttons to insert the wall automatically. If the room is rectangular, you only need to measure any two adjacent walls, and the rest is done automatically with the **Square** or **Square Reversed** method. Another time to use this feature is if you have a wall positioned at an odd angle, *i.e.* not 90° or 45° . Leave this wall and enter the other walls in order, then use the **Angled** closing method.


If none of the buttons give you the right result, you can add walls to the room list.

Room Closing buttons are grayed if there is an error **!** or a wall contains illegal data.

Closing Buttons are located at the bottom of the Disto Data dialog.





- **Commit Checked** will send to the FloorRight drawing only the rooms with a checked entry  and which are errors free. The **Disto Data** dialog is closed and rooms from the Disto appear in the FloorRight room view. The raw data in the Disto device is not affected. Once you have checked that all rooms have made it into the FloorRight drawing, you can delete the data from the Disto device, otherwise it is included with your next batch of data.
- **Discard** will close the **Disto Data** dialog without importing the data. First you are prompted with the standard confirmation dialog asking you if you would first like to save the changes you have made.
 - Click **Yes** to save or resave your raw Disto data.
 - Click **No** to actually **Discard** your data. This action doesn't delete a previously saved Disto data file; you only loose the changes you have made in the current session. If you have not saved the discarded data you must **Import** it again from the Disto device.
 - Click **Cancel** to stop the **Discard** and return to the **Disto Data** dialog.
- **Save** will save the raw data with a .csd extension. This would be used if the Disto data contained errors, which you want to examine and correct at a later time. The **Save** button brings up the Windows **Save As** dialog and will append the .csd extension to the file name you specify. You can come back to this data using **File / Import / Disto / File**.

Disto Errors

A  by a site indicates an error in one or more walls of one or more rooms.

Here are a few of the ways errors can creep into the Disto data.

Wall errors with illegal data - the room display window will be gray:

- Walls with a length of 0. 
- Direction other than one of the 8 compass directions - N, NE, E, SE, S, SW, W, NW - or left blank.   

Room errors -

- Empty rooms. Rooms must contain at least 2 walls in order to use one of the automatic **Room Closing** methods to finish the room.
- Crossing walls
- Walls must be listed in order around the room, clockwise or counterclockwise. For example, a north wall cannot follow a S wall. If the walls are out of position, you can drag their data entries into the proper order.


Editing Disto Data

If your Disto data contains errors of omissions, you can edit the data in the following ways.

Drag and drop operations can be applied to wall and room entries. If a wall measurement is out of order (a cause for error !), it can be moved to the correct position within the room. Walls can also be moved between rooms. Rooms can be moved within the site and between sites. Sites can also be dragged within the list of sites.

A right click of the mouse gives you the following options.



- **Delete** -  If you have selected a site, all rooms and walls within the site are deleted. If you have selected a room, the entire room is deleted. Right clicking a single wall, you can delete the wall.
- **Insert Wall** - Right click a room entry and **Insert Wall** will place the new wall at the end of the wall list. Click on a wall of a room to insert a new wall after the selected wall. If you click on a site the **Insert Wall** command is grayed, *i.e.* not available.
- **Insert Room** - Right click a site and **Insert Room** will place the room at the end of the list of rooms in that site. Click on a room to insert a new room after the selected room. Click on the blue text box to edit the name of the New Room and hit Enter to finish the edit. Right click the new room again to insert new walls.
- **Insert Site** - Click on any entry in the data list to insert a new site before the next site in the list. Click on the blue text box to edit the name of the New Site and hit Enter to finish the edit. Right click the new site again to insert a new room and follow the instructions above for inserting new rooms.