Leica TDRA6000 Total Station



This Quick-start guide can be used for initial configuration, connection and basic operation of the Leica TDRA6000 Total Station within SA. For more details on instrument operation and configuration contact Leica directly.

Hardware Setup

Set up the unit following the manufacturer's directions. Leica total stations may be connected either with a USB cable, wireless network adapter or Bluetooth connection. Ensure that you have the necessary cables, router or a Bluetooth adapter. Be sure the power is turned on and the battery is charged.

Software Setup

It is recommended that initial connection and testing be performed using a cable connection to your computer. To connect directly to the PC, you will need to install the instrument drivers. The current drivers SA supports can be downloaded from http://www.kinematics.com/ ftp/SA/Install/Driver%20Downloads/TotalStations_Theodolites/Leica/.

Direct Cable Connection:

- 1. On the scope, select **Instrument** > **Interfaces**
- 2. Set the GeoCom connection to Port 1 (RS232, RS232 GeoCOM).
- **3.** Set the GSI connection to Port 1 (RS232 GeoCOM, None, GSI GSI Polar2).
- 4. Connect the USB cable and continue to the *Starting the Interface* section...

Connecting to Bluetooth

- 1. On the scope, select Instrument > Interfaces
- 2. Set the GeoCom connection to Port3 (BT) (RS232, RS232 GeoCOM).
- **3.** Set the GSI connection to Port3 (BT) (RS232 GeoCOM, None, GSI GSI Polar2).
- **4.** On your PC, go to your Bluetooth adapter and select Add a Device.
- 5. Select the device from the available Bluetooth connections and select next.
- 6. When prompted, enter the pairing code: 0000. Once connected, a COM port number will be assigned and can be accessed through the properties of the device.

Starting the Interface

 Select Instrument > Add and choose the Leica TDRA6000 Total Station from the Add Instrument to SA dialog (Figure 16-49).





- 2. Now run the instrument interface module under Instrument > Run Interface Module and choose Theodolite Manager.
- **3.** Select New Setup and then Add (Figure 16-50).

📓 Theodolite Mana	ger 🗖 🗖 🔀
	<- Add
	Theodolite Manager
2	New Setup
Query	Last Setup
	Other Setup

4. Select the instrument by name in the *Type* drop down menu.

- 5. Select the Com Port. The port number was displayed in the Bluetooth manager during the creation and can be found by going to the properties of the device in the Bluetooth manager.
- 6. Select the instrument station to connect to by clicking in the available Spatial Analyzer Connections job list and press Connect.

🗿 Theod	dolite Manager				
	Add Instrument				
	Theodolite Connection				
? <	Type Leica TDRA6000 Total Station 🔹				
	Comm Port COM3 -				
	SpatialAnalyzer Connection Refresh				
	JEREMYM6700PC (192.168.0.173)				
- 1	•				
	User Name Server Addr Connect Cancel				
l					

Figure 16-50. The Theodolite Manager dialog.



Once connected the Leica TDRA6000 interface will display and you will be ready to begin using the instrument (Figure 16-52).



Instrument Specific Operations

Tracking with the Leica TDRA6000

The TDRA6000 can track a reflector much like a Laser Tracker.

- 1. In the Tracking section, Choose a reflector target from the Targets and Reflectors database (ensure that ATR is turned on for that target)
- 2. Choose the tracking type (Track only, Send Updates, Measure, Stable Point)
- 3. Press the Track (F7) button to begin tracking the target

Edge Point Measurement

The Leica TDRA6000 has a built in Edge Point Measure Mode designed to allow precise measurements to be made on the edge of parts.

1. Precisely sight on the edge you wish to measure, then in the Two Step Edge Point section, Press Measure. This will take an angles only measurement of the edge

2. Using an edge nest or other reference target measure the precise distance to that edge point. The true edge point will then be calculated automatically from these shots and the resulting point passed to SA.

Precise Point Scan within a Perimeter

The Leica TDRA6000 has the ability to scan a predefined region, do to so, start by building a perimeter within SA to define the region within which to perform the scan.

- 1. Measure Points to define the perimeter of your scan (Perimeters are constructed as a 3D polygons, or a closed region built from straight lines connecting individual point locations).
- 2. Select *Construct> Perimeter*. You will be prompted to select the points to define the polygon. Choose each point in order to define a closed polygon, the first and last points will be connected automatically to construct the closed perimeter.



3. Click the Settings button to change the parameters of the scan based on the line and point spacing in the *Auto Scan Properties* dialog (Figure 16-63).



Auto Scan Properties		x		
Line Spacing:	6	in		
Point Spacing:	6	in		
Line Length:	5.0	in		
Grid Rotation:	45.0			
✓ Serpentine Mode✓ Break Groups By Scanlines✓ Show Scanlines in SA				
ОК		ancel		

4. Change the *Auto Measure SA Geometry* to *Active* by selecting the radio button. When you do so, a note will be shown at the bottom of the interface that states: *"Awaiting SA Perimeter Selection"* (Figure 16-55).

	Auto Measure SA G	Auto Measure SA Geometry	
Figure 16-55. Auto Measure	🔘 Inactive	 Active 	
SA Geometry	Settings	Measure	
	Awaiting SA Perimeter S	election	

- 5. Click on the desired perimeter by clicking on double-clicking on it in the tree. When selected, the perimeter *Collection::Name* will be displayed.
- 6. To begin the scan, click Measure. An example of this type of perimeter scan is pictured in Figure 16-64.



Figure 16-56. A point to point auto measure scan.