

**TECHNICAL SPECIFICATIONS FOR ELECTRONIC TOTAL STATION (ETS)**

<b>Electronic Total Station</b>	
Total station instrument	1 no.
Total Station Tripod	1 no.
Prism	3 nos. Reflector system, each comprising of One Prism, One Holder, One Target Plate
Poles	3 Nos. Prism Poles with Bubble, Telescopic, 2.5 m in height should be supplied with each Total Station.
Rechargeable Battery	2 nos.
Charger with power cord	1 no.
External Memory Card	Minimum 2 GB storage space.
Data Transfer Cable	Data Transfer Cable from Total Station to Computer, preferably USB cable
Software	Post Processing Software for Mapping & geo-referencing

SI.No.	Specifications	
1.	<b>ANGLE MEASUREMENT</b> Least Count Accuracy	1" (One Second) 3" (Three Second)
2.	<b>TELESCOPE :</b> Magnification Field of view Minimum Focusing Distance Image Resolving Power	30x 2.2m or better 2m or less Erect <3"
3.	<b>DISTANCE MEASUREMENT WITH REFLECTOR:</b> Single Prism Accuracy Shortest Measurable distance	5km or better $\pm 2\text{mm} + 2\text{ppm} \times D$ 1.5m or better
	<b>WITHOUT REFLECTOR</b> Accuracy Range	$\pm 5\text{mm} + 2\text{ppm}$ (Or better) 250 or better.
4.	<b>COMPENSATOR</b> Dual Axis Compensating Range	Dual Axis +/- 3'
5.	<b>TEMPERATURE &amp; PRESSURE</b>	Automatic Temperature Pressure Sensor inbuilt in Instrument may be preferred.
6.	<b>CENTERING DEVICE</b>	Optical Plummet OR Laser Plummet
7.	<b>LEVELLING</b> Plate Level & Electronic  Level Sensitivity : Circular Level	Graphic Display on screen & Manual plate bubble (both) 30"/ 2mm or better 10'/2mm or better
8.	<b>KEYBOARD</b> Type Position  <b>DISPLAY</b>	Alphanumeric/ Virtual On Both sides identical.

	<p>Illumination</p> <p>Display</p>	<p>The Display should be illuminated</p> <p>Bright, readable in sunlight, graphic LCD; should display lines and polygons. (Line joining must be displayed on screen of Total Station with Zoom and Pan facility).</p>
9.	<p><b>MEMORY</b></p> <p>External Memory</p> <p>Internal Memory</p>	<p>External Memory through SD/CF card to be attached to Total Station.</p> <p>Must have minimum 10,000 points onboard memory.</p>
10.	<p><b>POWER OPTIONS</b></p> <p>Battery</p>	<p>Battery should last for approx. 8 hours per charge.</p>
11.	<p><b>Weight</b></p>	<p>Approx. 5 to 7 kg.</p>
12.	<p><b>On Board Programs:</b></p>	<p>Set Station and Orientation  Setting out (Stake Out)  Free Station (Resection)  Remote Height  Tie Distance (Missing Line)  Area 2D / 3D  Volume calculation  Traverse Function &amp; adjustments  Storing of the adjusted co-ordinates.  Should have facility to input scale factor and elevation factor.  Should have COGO features, such as:  Line – Line Intersection  Line – Arc Intersection  Arc – Arc Intersection.</p>
13.	<p><b>Data Downloading Software</b></p>	<p>Should be Windows Compatible.  Must be installable in PC.  Capable of import and export of survey data from the Total Station to standard CAD formats.  Should have facility for converting data into different type of formats.</p>
14.	<p><b>Post Processing Software</b></p> <p>ADJUSTMENT</p> <p>COMPUTATION</p>	<p>Traverse adjustment using Bowditch method</p> <p>Auto-creation of Point, Line and Polygon with attributes, layer facilities from survey data. Auto creation of parcels based on non-sequential points.</p> <p>Point creation in different methods such as co-ordinates, difference in coordinates, Distance and angle, Distance and offset, Line and offset intersection, Distance-Distance intersection, offset intersection.</p>

	<p><b>TRANSFORMATION</b></p> <p><b>DATA CONVERSION &amp; OUTPUT</b></p>	<p>Plane co-ordinate transformation system.</p> <p>Import and Export data in popular total station raw formats, DXF, DWG, ASCII, KML, XML, ESRI (SHP, SHX, DBF), Mapinfo (TAB, MIF, MID) format.</p> <p>Batch conversion to and from WGS84, local coordinates, latitude longitude system.</p> <p>Software should generate feature table, Parcel Area report and grid during output.</p> <p>Print Preview, print scaling, custom paper size should be supported.</p> <p>Auto-creation of parcel sheet showing individual parcel, ladder data, area and attributes with dimensions.</p> <p>Should have the provision of merging data/drawings.</p>
	<p><b>MERGING &amp; GEO-REFERENCING</b></p>	<p>Should have provision for mosaicing of individual parcels and complete maps.</p> <p>Software should support geo-referencing of digitized maps by triangulation and rubber sheeting</p>
	<p><b>UTILITIES</b></p>	<p>Display of GIS Raster format like Geo TIFF, Arc Digitized raster format (GEN, THF), PNG, BMP, GIF, JPEG2000, ERDAS Imagine RAW for on screen digitization.</p> <p>Creation of parcels from ladder data and generation of ladder table from existing parcels.</p> <p>Auto-creation of mosaiced parcels based on feature code.</p> <p>Provision for display of area, and other user defined attributes for parcel with auto-updation.</p>
15.	<p><b>COMPATABILITY</b></p>	<p>Data from any make GPS in UTM Format must be compatible with Total Station and Vice-versa.</p>