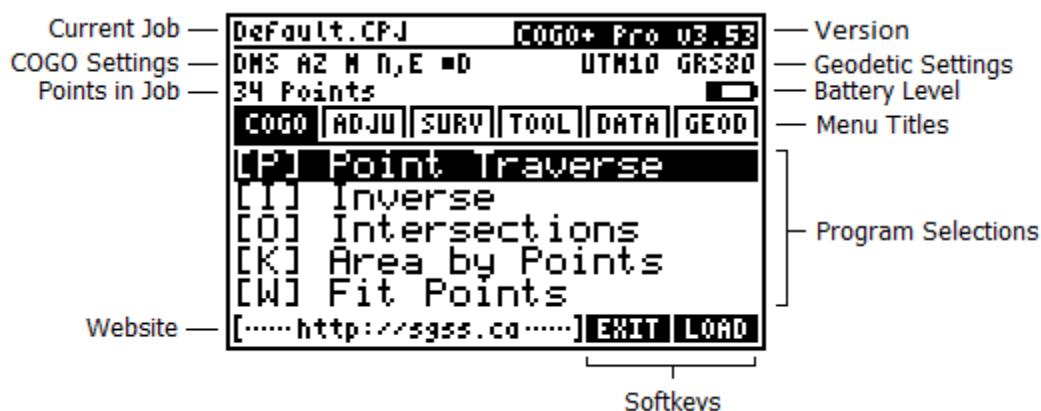


# 2 User Interface

## 2.1 Screen

The user interface displays program settings and provides access to all program functions. The diagram below illustrates the screen layout.



Item	Description
Current Job	Displays the current job name. <b>ALL JOBS ARE AUTOMATICALLY SAVED WITH A *.CPJ EXTENSION.</b>
Version	Displays the version number of the installed COGO+ software.
COGO Settings	Displays some of the available user settings. <ul style="list-style-type: none"><li>■ <b>DMS</b> (360° ' ") <b>DEG</b> (360° decimal) <b>GRD</b> (400 gons) indicates current Angle Unit setting.</li><li>■ <b>AZ</b> (North Azimuth) <b>SA</b> (South Azimuth) <b>QB</b> (Quadrant Bearings) indicates current direction reference setting.</li><li>■ <b>M</b> (Metres) <b>F</b> (Feet) indicates the current Primary Distance Unit setting.</li><li>■ <b>N,E</b> (Northing Easting) <b>E,N</b> (Easting Northing) <b>X,Y</b> (X-Coord, Y-Coord) indicates current coordinate order and label setting.</li><li>■ <b>■D</b> (Descriptions ON) <b>_D</b> (Descriptions OFF) indicates if the description prompt toggle is set ON or OFF.</li></ul>
Geodetic Settings	Displays the coordinate system and reference ellipsoid set.
Points in Job	Displays the number of points stored in the current job.
Battery Level	Displays the battery level or <b>USB</b> . USB power source is possible for HP 50g only.

Menu Titles	Displays the short titles of all menus, with the current menu name highlighted. <ul style="list-style-type: none"> <li>▪ <b>COGO</b> menu</li> <li>▪ <b>ADJU</b>stments menu</li> <li>▪ <b>SURV</b>eying menu</li> <li>▪ <b>TOOL</b>s menu</li> <li>▪ <b>DATA</b> Manager menu</li> <li>▪ <b>GEO</b>Detic menu</li> </ul>
Program Selections	Displays the available programs within each menu, with the currently selected program name highlighted.
Website	Displays the <b><i>Simple Geospatial Solutions</i></b> website address. The website provides software updates and documentation.
Softkeys	Displays the two softkeys available from the main user interface. <b>F5</b> <b>EXIT</b> exits <b>COGO+</b> , while <b>F6</b> <b>LOAD</b> loads the currently selected program.

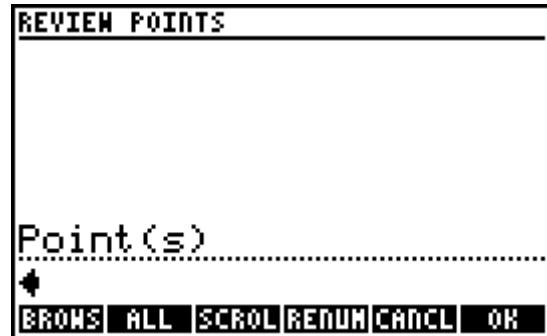
## 2.2 Keyboard

Navigate the main user interface by using the directional cursor keys. Use the  $\leftarrow$  and  $\rightarrow$  cursor keys to change the current menu, and use the  $\uparrow$  and  $\downarrow$  cursor keys to change the current selection. Pressing **ENTER** or **F6 LOAD** will load the currently selected program, pressing **ON** or **F5 EXIT** will exit **COGO+**. Each of the programs is also directly available through shortcut keys to eliminate the need to navigate the menus. The following table lists the shortcuts in alphabetic/numeric order:

Key	Program	Key	Program
<b>F1</b> <b>A</b>	Not Assigned	<b>SIN</b> <b>S</b>	Alignments
<b>F2</b> <b>B</b>	Bearing <> Azimuth Conversions	<b>COS</b> <b>T</b>	Traverse Plus
<b>F3</b> <b>C</b>	Grid <> Geodetic Conversions	<b>TAN</b> <b>U</b>	Plot Points
<b>F4</b> <b>D</b>	Ellipsoid Calculations	<b>EEX</b> <b>V</b>	Vertical Curve Solver
<b>APPS</b> <b>G</b>	Triangle Solver	<b>+/-</b> <b>W</b>	Fit Points
<b>MODE</b> <b>H</b>	Horizontal Curve Solver	<b>X</b> <b>X</b>	Import/Export ASCII files
<b>TOOL</b> <b>I</b>	Inverse	<b>I/X</b> <b>Y</b>	Configure Settings
<b>VAR</b> <b>J</b>	Job Manager	<b>÷</b> <b>Z</b>	Inaccessible Point
<b>STOP</b> <b>K</b>	Area by Points	<b>I</b>	Compass Rule Adjustments
<b>NXT</b> <b>L</b>	Levelling	<b>2</b>	Rotate Points
<b>HIST</b> <b>M</b>	Not Assigned	<b>3</b>	Shift/Average Points
<b>EVAL</b> <b>N</b>	Store/Edit Points	<b>4</b>	Scale Points
<b>1</b> <b>O</b>	Intersections	<b>5</b>	Helmert Transformation
<b>SYMB</b> <b>P</b>	Point Traverse		
<b>Y*</b> <b>Q</b>	Delete Points		
<b>✓X</b> <b>R</b>	Recall Points		

## 2.3 Input Screens

Input screens accept a single line of user input. Some input screens feature a softmenu with additional options. Point numbers, directions, angles, and distances are common input types. **NOTE: THE FONT SIZE TOGGLE SETTING CONTROLS THE FONT SIZE OF INPUT LABELS, FOR EXAMPLE *Points(s)* IN THE SCREEN CAPTURE.**



### Point Numbers

A single point number can be input by simply entering the number. The **BROWSE** softkey opens the point browser to review and/or select an existing point in the current job. To input a range of points:

- Enter a range of points in the format “From..To”, for example **1..5**, to input a range of point numbers.
- Enter a combination of point ranges and individual points, for example **1..5 7 9..15**, where each range or individual point is separated by a space.
- Often a softkey labelled **ALL** is available to select all points in the current job.

### Directions

A direction input can be an azimuth or a quadrant bearing. The prompt will depend on the [direction reference](#) user setting.

- Enter a  $360^{\circ}$  azimuth input in the DDD.mmss format. For example,  $123^{\circ}45'12''$  is entered as **123.4512**.
- Enter a quadrant bearing input in the QDD.mmss format, where Q is the quadrant (1 to 4). For example,  $N24^{\circ}34'55''W$  is entered as **424.3455**.
- Enter two points in the “From..To” format to inverse the direction between two existing points in the job database. For example, enter **1..2** to inverse the direction from Point 1 to Point 2.
- Subtract or add angles to/from a line direction by entering “From..To+Angle” or “From..To-Angle”. For example **1..2+30.3055** will inverse the direction from Point 1 to Point 2 and add  $30^{\circ}30'55''$  to it.
- Perform complex calculations using standard algebraic entry with current angle unit settings. For example **1..2+30.17-2.35-1.44** will inverse the direction from Point 1 to Point 2, then add  $30^{\circ}17'$ , then subtract  $2^{\circ}35'$ , and then subtract another  $1^{\circ}44'$ .

## Angles

Angles work in a similar fashion as azimuths/bearings except that the input MUST be a real number or a complex calculation involving only real numbers. In some cases a softkey labelled **CALC** or similar will allow the angle to be calculated in a separate input form.

## Distances

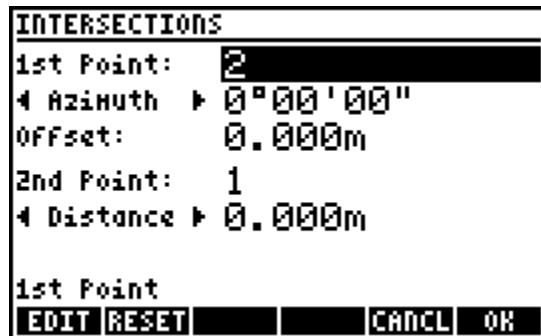
Distance input is similar to direction input:

- Enter two points in the “From..To” format to inverse the distance between two existing points in the job database. For example, enter **1..2** to inverse the distance from Point 1 to Point 2.
- Subtract or add a distance from a line distance by entering “From..To+Distance” or “From..To-Distance”. For example, **1..2+30.1** will inverse the distance from Point 1 to Point 2 and add 30.1 units to it.
- Divide or multiply a line distance by a factor by entering “From..To\*Factor” or “From..To/Factor”. For example, **1..2/5** will inverse the distance from Point 1 to Point 2 and divide the result by 5.
- Perform complex calculations using standard algebraic entry. For example, **1..2+(30.214/3)-5** will inverse the distance from Point 1 to Point 2, then add one third of 30.214, then subtract 5.

NOTE: With a complex input entered in the command line of an input screen, you can press the **EVAL** key to EVALuate the input before using it. This allows the user to see the result of a calculation input before proceeding.

## 2.4 Input Forms

Input forms accept multiple inputs on one screen. Each field in an input form behaves differently depending on the type of input. Point numbers, directions, angles and distances are all entered the same as in [input screens](#). Current [display settings](#) control the appearance of each field.



INTERSECTIONS			
1st Point:	2		
4 Azimuth	0°00'00"		
Offset:	0.000m		
2nd Point:	1		
4 Distance	0.000m		
1st Point			
EDIT	RESET	CANCEL	OK

- Some field labels contain arrows to indicate that there are different possible inputs for that field. For example, the *< Azimuth >* and *< Distance >* labels in the screen capture above. The  $\leftarrow$  and  $\rightarrow$  cursor keys toggle between the available selections which changes the field label.
- The menu may change dynamically when the current field changes or when the command line becomes active, to allow for calculations, etc.
- If the current field is a choose field, then a  $F2$  **CHOOSE** softkey is displayed. The  $\uparrow$  and  $\downarrow$  cursor keys also toggle choose field selections.
- The menus in the input forms often offer a range of options that may not be directly available in the form itself, including jumping to a different input form, etc.

## 2.5 Choose Boxes

Choose boxes present a list of multiple options from which to choose. Some choose boxes are full screen while others are not. The CONFIGURE SETTINGS choose box is an example of a full screen choose box, while the JOB OPTIONS choose box in the Job Manager is the pop-up style. The  $\uparrow$  and  $\downarrow$  cursor keys change the selection,  $F6$  **OK** or **ENTER** loads the selection and  $F5$  **CANCEL** or **ON** closes the choose box. **NOTE: THE FONT SIZE TOGGLE SETTING CONTROLS THE FONT SIZE OF THE CHOOSE ITEMS.**



CONFIGURE SETTINGS	
1. Units	
2. Display	
3. General	
4. Toggles	
5. Geodetic	
6. Codelist	
7. XS Templates	
CANCEL	OK



JOB MANAGER	
Def	JOB OPTIONS
JUN	1. Import Job
TES	2. Backup Job
	3. Backup All
	4. Move Job
	5. Rename Job
CANCEL	OK

## 2.6 Output Screens

Output screens display the results of calculations and do not accept input. Some output screens feature a menu to provide access to further calculations related to the data, while other output screens will only feature a **F6** **OK** softkey. Some output screens consist of multiple pages; use the **▲** and **▼** cursor keys to change the current page. Output screens with multiple pages have a label on the upper right-hand corner of the screen displaying the current page and the total number of pages.

Most output screens allow the user to adjust the number of displayed decimals.

- Use the **[+]** and **[−]** keys to adjust the distance decimals.
- Use the **[←]** followed by **[+]** or **[−]** to adjust the azimuth/bearing decimals.
- Use **[→]** followed by **[+]** or **[−]** to adjust the coordinate decimals.

**HORIZONTAL CURVE SOLUTION 1/2 ▲**

Radius:	500.000m
Defl. a:	15°00'00"
Arc:	130.900m
Chord:	130.526m
Tangent:	65.826m
Mid-Ord:	4.278m
External:	4.314m

**EM>F:COORD EXPRT** | **OK**

Adjusting the decimal display settings from an output screen has only **temporary** effect until the output screen is closed. To permanently adjust the decimals that are displayed by default, changes are required to be made to the [display settings](#) or using the above key combinations in the main menu.