

1. Installation and Upgrading

All the COGO+50 files mentioned below are available for download at <http://surv50.ca/downloads.html>. The instructions for Method 1 are for PC users and require a SD card. The instructions for Method 2 require the HP 50g, 49g+ and 48gII PC Connectivity Kit which can be downloaded from <http://www.hpcalc.org/details.php?id=5890>. Method 1 is the recommended method.

1.1. Install using SD Card

STEP 1: Download the file COGOPLUS.zip by selecting the "COGO+50 Complete" option, see Figure 1.1, and save to a destination of your choice.

» Download Program Files

Some files are provided in the compressed ZIP format. Software such as the open source 7-Zip can be used to extract these files.

[COGO+50 Complete \(ZIP\)](#)

Figure 1.1

STEP 2: Navigate to the folder where you saved the file, right-click on it and select "Extract All..." to extract the contents of the file, see Figure 1.2.

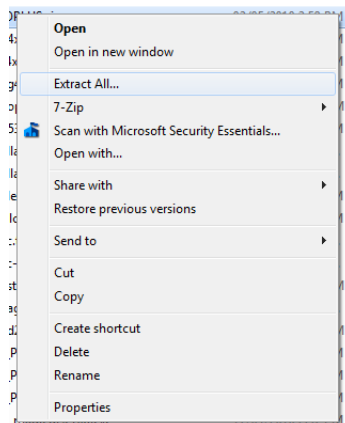


Figure 1.2

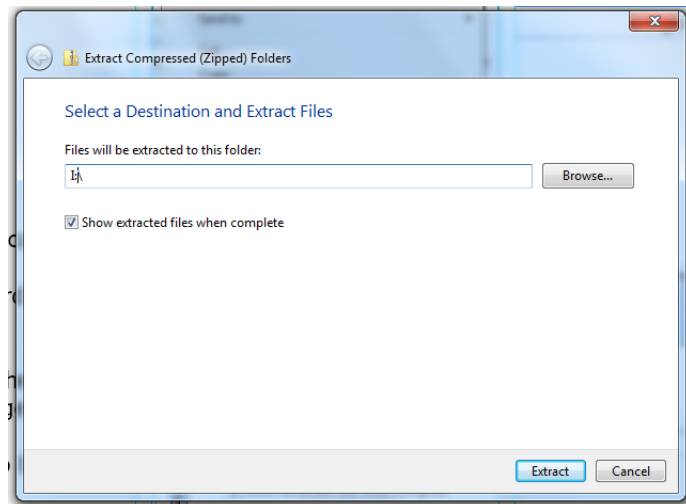


Figure 1.3

STEP 3: With the SD card in the card reader, enter the drive letter for your SD card, for example I:\, and click "Extract", see Figure 1.3.

STEP 4: Insert SD card into calculator.

STEP 5: Press \leftarrow , then APPS to access the File Manager, see Figure 1.4.

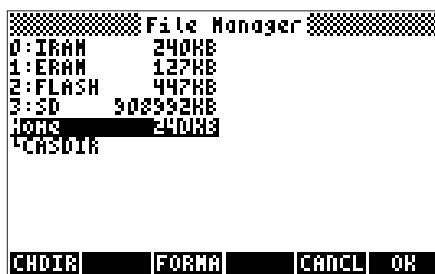


Figure 1.4

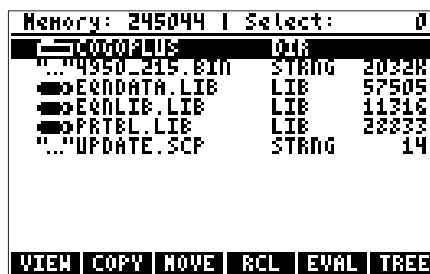


Figure 1.5

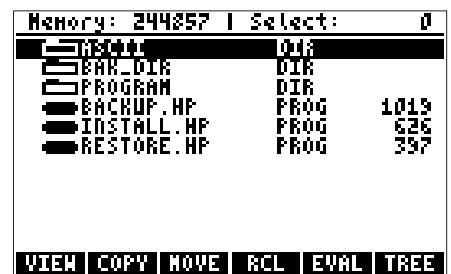


Figure 1.6

STEP 6: Press **(3)** to browse the SD card.

STEP 7: Locate the COGOPLUS directory and highlight it, see Figure 1.5.

STEP 8: Press **(▶)** to browse the COGOPLUS directory, see Figure 1.6.

STEP 9: Highlight INSTALL.HP and press **(F5)** to begin the installation process. First you will be asked whether or not you wish to backup your calculator, see Figure 1.7. Included with the Version 2.1 program files is a very nice backup management system that you can use at any time to backup your data or restore a backup. Enter a name to call this backup, for example MAY02 as shown in Figure 1.8. The backup time will vary depending on how much memory is used up in HOME directory, then a message displaying Installing... will remain on the screen while the program is being installed. Another new option in Version 2.1 is presented after COGO+50 is installed, you are asked whether you wish to install SDfiler or not, see Figure 1.9, unless SDfiler is already installed, in which case the option is not presented. This is optional but recommended if you will be doing a lot of exporting of ASCII files, see Section 2.4 of the manual for more information about SDfiler. Again the Installing... message is on the screen while SDfiler is installed. Once installation completes you will see the message to warmstart the calculator, see Figure 1.10.



Figure 1.7

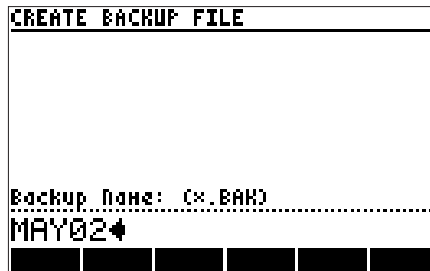


Figure 1.8

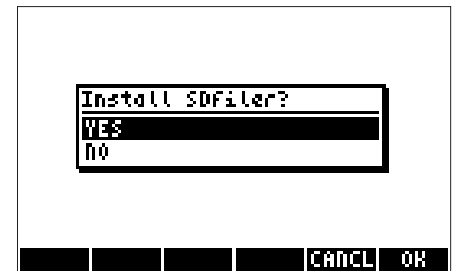


Figure 1.9

STEP 10: Warmstart the calculator by holding down **(ON)** and then pressing **(F3)**.

- Installation Completed



Figure 1.10

NOTE: The COGOPLUS directory needs to be in the root directory of your SD card to work properly. Within the COGOPLUS directory are the following:

- ASCII subdirectory - Contains a few *.TXT files by default that are used in some of the examples in the manual, and this is where exported ASCII files are saved to on the SD card, and by default the Import Points program will open this directory to look for files to import.
- BAK_DIR subdirectory - Contains a clean DEFAULT.BAK backup and a sample flag settings backup. All backups and the flag settings backup are stored in this directory, and the RESTORE.HP program looks in this directory for backups to restore.
- PROGRAM subdirectory - Contains C50P.LIB, the COGO+50 library file, and the SDfiler files, called L935.HP and L936.HP.
- BACKUP.HP - A backup tool that stores backups in the BAK_DIR, asks for a name to save the backup as.
- INSTALL.HP - The installation program for COGO+50.
- RESTORE.HP - A program to restore saved backups.

1.2. Install using HP 50g, 49g+ and 48gII PC Connectivity Kit

STEP 1: Download the file C50P.LIB by selecting the "COGO+50 Library file only" option and save to a destination of your choice.

STEP 2: Navigate to the folder where you saved the file, right-click on it and select "Copy" to copy the file C50P.LIB to the Windows clipboard.

STEP 3: Connect USB cable between PC and calculator.

STEP 4: Open Connectivity Kit (Conn4x) on your PC.

STEP 5: On the calculator (RPN mode) type the command XSERV and press **ENTER**, see Figure 1.11.

```
DEG XYZ DEC C~ 'X'
{HOME}
6:
5:
4:
3:
2:
1:
XSERV
EDIT VIEW STACK RCL PURGE CLEAR
```

Figure 1.11

STEP 6: In Connectivity Kit from the File Menu select "Connect...", see Figure 1.12, and press OK in the following dialog box.

STEP 7: From the Edit Menu select "Paste", see Figure 1.13.

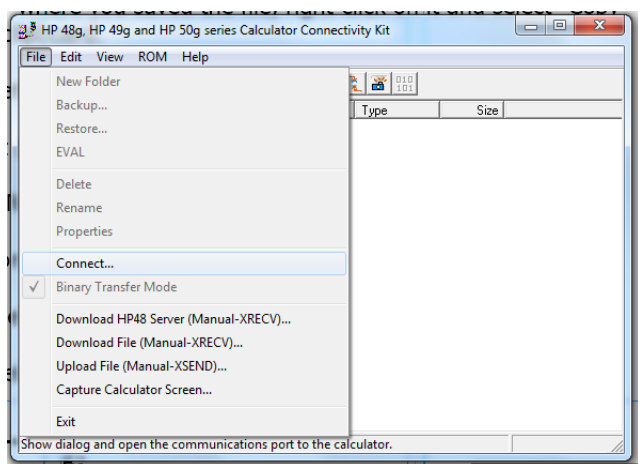


Figure 1.12

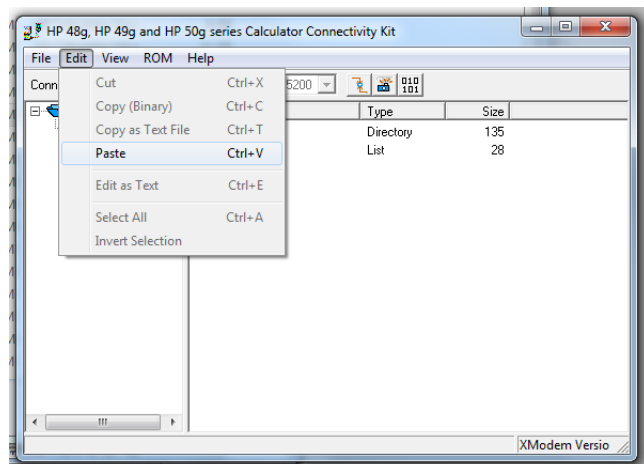


Figure 1.13

STEP 8: From the File Menu select "Disconnect from the calculator".

STEP 9: On the calculator, make sure you are in the HOME directory, if not return to HOME directory and press **VAR**.

STEP 10: You should see the first menu label display **C50P**, see Figure 1.14, press **F1** to recall the Library to the stack. With normal stack display mode you will see **Library 930: COGO+50 v2.1** on level 1 of the stack, as shown in Figure 1.15.

```
DEG XYZ DEC C~ 'X'
{HOME}
7:
6:
5:
4:
3:
2:
1:
C50P. IOPAR CASDI
```

Figure 1.14

```
DEG XYZ DEC C~ 'X'
{HOME}
7:
6:
5:
4:
3:
2:
1: Library 930: COGO+...
C50P. IOPAR CASDI
```

Figure 1.15

STEP 11: Press **2**, then **STO▶**, or enter **2 STO** as shown in Figure 1.16 and press **ENTER**.

STEP 12: Warmstart the calculator by holding down **ON** and then pressing **F3**.

STEP 13: PURGE the variable C50P.LIB from the HOME directory as it is no longer needed, see Figure 1.17.

- Installation Completed

```
DEG XYZ DEC C~ 'X'
(HOME)
6:
5:
4:
3:
2:
1: Library 930: COGO+...
2 STO▶
C50P: IOPAB CASDI
```

Figure 1.16

```
DEG XYZ DEC C~ 'X'
(HOME)
6:
5:
4:
3:
2:
1: 'C50P.LIB'
PURGE▶
C50P: IOPAB CASDI
```

Figure 1.17

NOTE: Some users experience difficulty connecting the calculator with the HP 50g, 49g+ and 48gII PC Connectivity Kit, if at all possible try using a SD card for the installation if you're attempting Method 2 and it is not working for you.

If you experience difficulties trying to install the program, do not hesitate to contact me.

1.3.Upgrade using SD Card

It is recommended to install Version 2.1 as if it was a new install, overwriting the existing directory COGOPLUS directory on your SD card. The new installation and backup programs require the new sub-directories.

For future upgrades, download the latest C50P.LIB file and copy it into the PROGRAM sub-directory within the COGOPLUS directory on your SD card, then install as described in Section 1.1.

1.4.Upgrade using HP 50g, 49g+ and 48gII PC Connectivity Kit

PURGE the existing copy of COGO+50 by entering **:2:930 PURGE**, see Figure 1.18, then install the latest C50P.LIB file as described in Section 1.2.

```
DEG XYZ DEC C~ 'X' PRG
(HOME)
6:
5:
4:
3:
2:
1:
:2:930 PURGE▶
IOPAB CASDI
```

Figure 1.18

2. Getting Started

After the software is installed, there are 3 ways to access the COGO+50 library:

1. Type (in RPN mode) COGO+ and press **ENTER**, or
2. Press **→** then **2** to access the library menu and look for the menu label **COGO**. Pressing the corresponding key will bring up the menu for COGO+50 which contains just the one menu item labelled **COGO**. Press **F1** to start the program, or
3. Press **APPS** then **▲**. COGO+50 will be an entry near or at the bottom of the list, highlight it and press **F6**.

Another option is to add COGO+ to your CST variable to access the library from your custom menu, see the Addendum for more information.

2.1. Serial Number and Key

A activation key is required to unlock all the features of COGO+50. A limited DEMO mode is available until a valid key is entered. Visit <http://surv50.ca/sales.html> to purchase a activation key. The key will be emailed to you after the purchase order is completed.

Figure 2.1 is an example of the screen you'll see the first time running the program. The serial number shown on the screen is the internal serial number that is matched to the activation key. The key is stored on the calculator as 'SurveKey' in Port 2 when a valid key is entered. You will not be required to enter the key again unless the key is somehow deleted.

The Main Menu as shown in Figure 2.2, is the screen the program displays when started.

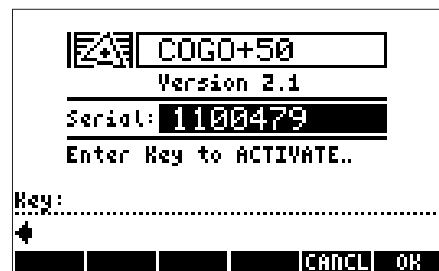


Figure 2.1

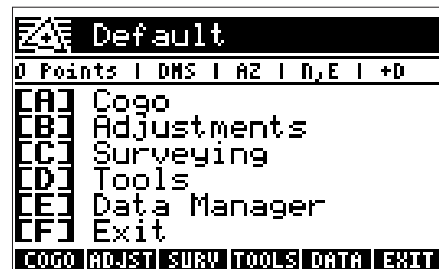


Figure 2.2

2.2. Configuring Settings

COGO+50 offers flexibility and ease of use regardless of what the user is accustomed to by providing various user settings. Some of these settings are visible on each menu screen as a status row indicating current settings:

0	Points	DMS	AZ	N,E	+D
1	2	3	4	5	

1. Number of points stored in the current job
2. Angle unit set (**D**egrees**M**inutes**S**econds/Decimal**DEG**rees/**GRaDs**)
3. Direction preference set (**AZ**imuths/**Q**uadrant**B**earings/**S**outh**AZ**imuths)
4. Coordinate display preference set (**N**orthing,**E**asting/**E**asting,**N**orthing/**X**-Coordinate,**Y**-Coordinate)
5. Description prompts enabled or disabled (**+D**escriptions/**-D**escriptions)

The settings program is found in the Tools Menu, see Figure 2.3. From the Main Menu press (F4) followed by (F5) to open the User Settings input form, see Figure 2.4. Select your preferred settings and press (F6) to save them. These settings remain unchanged until changed by the user.



Figure 2.3

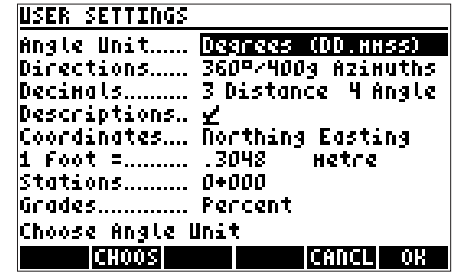


Figure 2.4

2.3.Shortcut Keys

As you can see in Figure 2.3, there is a column of letters in inverse video displayed at the very right hand side of the screen. These letters indicate the shortcut keys that can be used to access the corresponding program within the library. For example, instead of pressing (F4) then (F5) from the Main Menu to access the User Settings input form, you could also just have pressed the "Y" key, (/x). These shortcuts are available from any menu for any of the programs but are not available from within programs.

Pressing (ON) :

- Cancels the current program if a program is active,
- Returns to the Main Menu if a sub menu is active, or
- Exits the library if the Main Menu is active.

Below is a table listing all of the shortcuts, based on the alpha labels on the corresponding keys:

G = Triangle Solver	T = Traverse
H = Horizontal Curve Solver	U = Plot Points
I = Inverse	V = Vertical Curve Solver
J = Job Manager	W = Linear Regression
K = Area by Points	X = Import/Export
L = Levelling	Y = Settings
M = Pre-determined Area***	Z = Inaccessible Point
N = Store New Point	1 = Compass Rule
O = Offset Intersection	2 = Rotate Points
P = Point-to-Point	3 = Shift Points
Q = Delete Points	4 = Scale Points
R = Recall Points	5 = 2D Helmerts
S = Alignments	6 = Azimuth/Bearing Conversions

***Indicates the program will be included in a future update

2.4. Other Information

Some general information regarding COGO+50:

1. Quadrant Bearings are entered with the quadrant preceding the bearing to form a number in the format QDD.MMSS. For example, to enter the bearing of N16°30'15"E you would enter the bearing as 116.3015. Quadrants are defined as shown in Figure 2.5. With quadrant bearings set as the directions option, the bearing must begin with the quadrant (1 to 4) as the first character otherwise resulting in an error if the first character is not in the range of 1 to 4. (NOTE: You may also set quadrant bearings as direction setting in combination with angle unit setting as decimal degrees, QDD.dddd, or grads, QGG.gggg.)

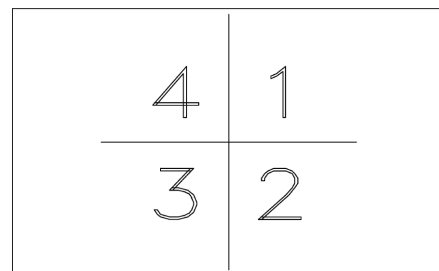


Figure 2.5

2. COGO+50 saves all data in the Hidden Directory to avoid unintentionally altering and/or corrupting files that could cause instability of the program. Backups and restores include everything in the hidden directory.
3. Flag settings and display mode are changed by COGO+50 upon program startup, but then restored after exiting the program.
4. Choose fields such as the ones found within the User Settings input form may be toggled by pressing the ◀ or ▶ arrow keys.
5. In almost all cases pressing the **ENTER** key is equivalent to pressing the **ON** softkey (**F6**), and the **ON** key is equivalent to the **OFF** softkey (**F5**).
6. Since Version 2.1, COGO+50 sets System Flag 60 upon program startup which requires just a single **ALPHA** keypress to lock alpha mode.
7. New in Version 2.1, if you have SDfiler installed on your calculator (<http://www.hpcalc.org/details.php?id=6524>), then any ASCII files that are exported to the SD card will not contain the HP header information that you need to delete before importing into a CAD program for example. This saves a step, but it is not a requirement. SDfiler is a C library written by Tim Wessman and Claudio Lapilli.